ENGINEERING NEWS-RECORD

- ▶ Kennedy's construction speedup [illegible]
- ▶ How Montreal builders handle a long winter [illegible]

Big Russian machines tackle Aswan Dam p.32

A McGRAW-HILL PUBLICATION

STEVENS RICE GS N
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Economy, durability, easy maintenance, functionalism—*all* are elements of this handsome new sports stadium at Maple Avenue Field, Altoona, Pa. Construction time was cut to approximately *one month* by the use of three-foot-wide prestressed box beams, with molded-in steps, resting on concrete columns . . . a deck formed of prestressed channel beams . . . precast seat supports . . . and a four-foot parapet of prestressed concrete double tee beams placed on edge. The contractor used Penn-Dixie cement.

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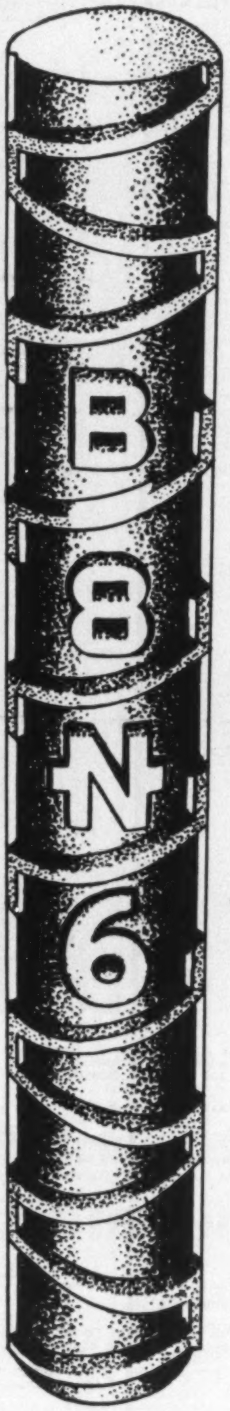

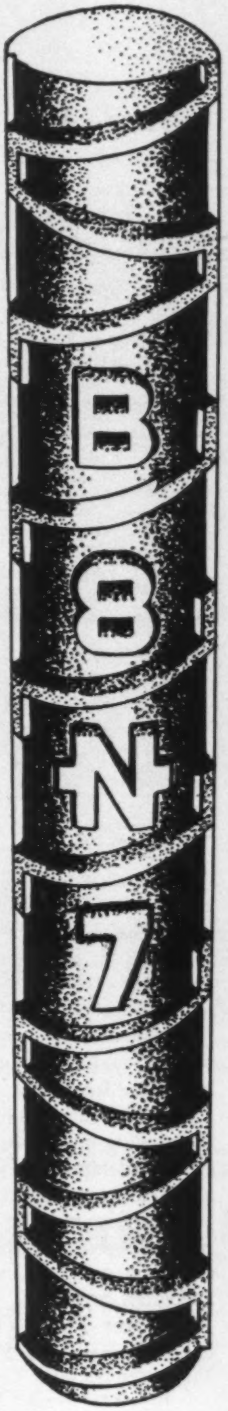

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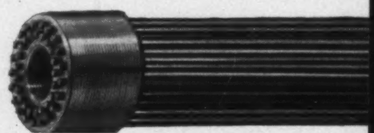
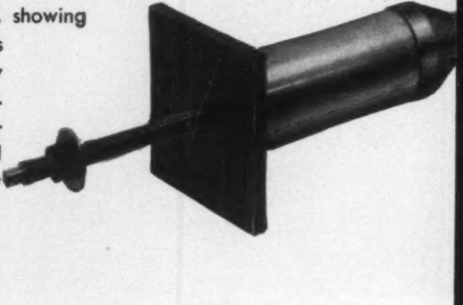
Following are some of the highlights of Ryerson post-tensioning service, showing how it offers new design freedom and economy—saving time and cutting costs. For further information on post-tensioning and the rest of Ryerson's complete service to the construction industry, call your Ryerson representative.

MOVABLE ANCHOR HEAD



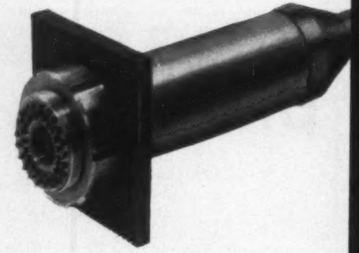
Made of high-grade steel with exterior threads for lock nut and interior threads for pull rod. Steel wires of exact length are inserted through the holes in anchor head and retained by cold formed button heads.

MOVABLE ANCHOR HEAD ASSEMBLY BEFORE STRESSING



. . . with wire bundle fitted into trumpet and conduit, showing the device which is used to temporarily hold the anchor head. Threaded bar on holding device can be used to secure the assembly to the formwork.

MOVABLE ANCHOR HEAD ASSEMBLY AFTER STRESSING



The movable anchor head is positively held in its final position by means of a lock nut screwed against the bearing plate. The center hole, after removal of the pull rod, is used as the grout inlet.

STRESSING DATA (according to the Bureau of Public Roads)	Number of Wires (diam.)	1—¼"	12—¼"	24—¼"	40—¼"
	Section of Wires (sq. in.)	.04909	0.589	1.178	1.963
	Final Force—after losses (lb.)	7,070	85,000	170,000	283,000
	Initial Force—before losses (lb.)	8,250	99,000	198,000	330,000
	Overstressing Force (lb.)	9,420	113,000	226,000	377,000
	Ultimate Force of Tendon (lb.)	11,780	141,380	282,760	471,260

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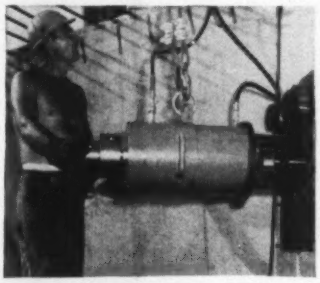
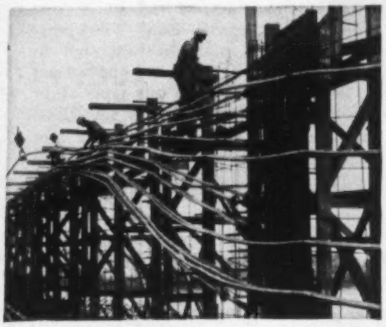
2. Detailing and placement plans—Ryerson prepares detailed placing drawings for the tendons, grout connections, grout vent pipes, anchorages, and other components. All units are clearly tagged and identified in accordance with these drawings.

3. Quality-controlled tendon and anchorage assembly—all units are fabricated under carefully controlled conditions. We can furnish test reports on every heat of wire used in the tendon. In every processing step we maintain close quality controls that assure compliance with all your specifications.

4. Equipment for precise stressing and positive grouting—we furnish all equipment, including easily operated jacks, precise instruments for measuring stress and elongation, hydraulic pumps, drop mixers, etc.





5. Field labor procedures—experienced Ryerson personnel assist in the supervision of every step of the post-tensioning operation, from accurate placement of tendons through precision stressing and anchoring to final positive grouting.

6. Dependably scheduled deliveries—Ryerson's nationwide distribution facilities give unequaled convenience and flexibility. Materials and equipment arrive at construction site in accordance with job progress.

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ENGINEER—Harza Engineering Co., Chicago
CONTRACTOR—Grant County Constructors

UNITED AIR LINES EXECUTIVE OFFICE AND TRAINING CENTER, CHICAGO
ARCHITECT—Skidmore, Owings & Merrill
CONTRACTOR—Gust K. Newberg Construction Co.

ONEIDA LAKE BRIDGE
BUILDER—State of New York, Dept. of Public Works
ENGINEER—Summers, Munninger and Molke
CONTRACTOR—Terry Contracting, Inc.

CHICAGO EXPOSITION CENTER
BUILDER—City of Chicago
CHIEF ARCHITECT—Alfred Shaw
STRUCTURAL ENGINEER—Carl Metz
CONTRACTOR—Gust K. Newberg Construction Co.

NAVAL AIR STATION TAXIWAY, LEMOORE, CALIFORNIA
BUILDER AND ENGINEER—U. S. Navy
CONTRACTOR—Griffith Company

NORTHWEST EXPRESSWAY OVERPASS, CHICAGO
BUILDER AND ENGINEER—Cook County (Illinois) Highway Dept.
CONTRACTOR—Thomas McQueen Co.

LAKE MEADOWS SKATING RINK, CHICAGO
BUILDER—New York Life Insurance Co.
ARCHITECT AND ENGINEER—Skidmore, Owings & Merrill
CONTRACTOR—Turner Construction Co.

GEORGE WASHINGTON BRIDGE APPROACHES, NEW YORK CITY
BUILDER AND ENGINEER—Port of New York Authority
GENERAL CONTRACTORS—Gull Contracting, Inc.; Johnson, Drake & Piper
SUB-CONTRACTOR—Precrete, Inc.

MISSION VALLEY FREEWAY BRIDGES AND PRESIDIO PARK OVERPASS, SAN DIEGO
BUILDER AND ENGINEER—State of California, Dept. of Public Works, Div. of Highways
CONTRACTOR—W. F. Maxwell Co.

SANTA MONICA AND SANTA ANA FREEWAYS INTERCHANGE
BUILDER AND ENGINEER—State of California, Dept. of Public Works, Div. of Highways
CONTRACTOR—Peter Kiewit Sons Co.

CENTURY 21 COLISEUM, SEATTLE
BUILDER—State of Washington, Dept. of Commerce & Economic Development
ARCHITECT—Paul Thiry, Seattle
CONTRACTOR—Howard S. Wright Construction Co., Seattle

LEHIGH PORTLAND CEMENT STORAGE BUILDING, MITCHELL, INDIANA
ENGINEER AND CONSTRUCTOR—Fruin-Colnon Contracting Co.

MULTI-LEVEL PARKING DECK, HAMMOND, INDIANA
BUILDER—Triangle Parking Corp., Hammond
ENGINEER—DeLeuw, Cather & Co., Chicago
CONTRACTOR—Roy C. Clark, Inc., East Chicago, Indiana

ROOF STRUCTURES, CONEY ISLAND POLLUTION CONTROL PROJECT
BUILDER—City of New York, Dept. of Public Works
ENGINEER—Greeley & Hansen, Chicago
Consultant—Frank Klein, Chicago
CONTRACTOR—Lasker-Goldman Corp., New York City

GRINNELL COLLEGE FINE ARTS CENTER, GRINNELL, IOWA
ARCHITECT—Skidmore, Owings & Merrill
CONTRACTOR—The Weitz Company, Inc., Des Moines

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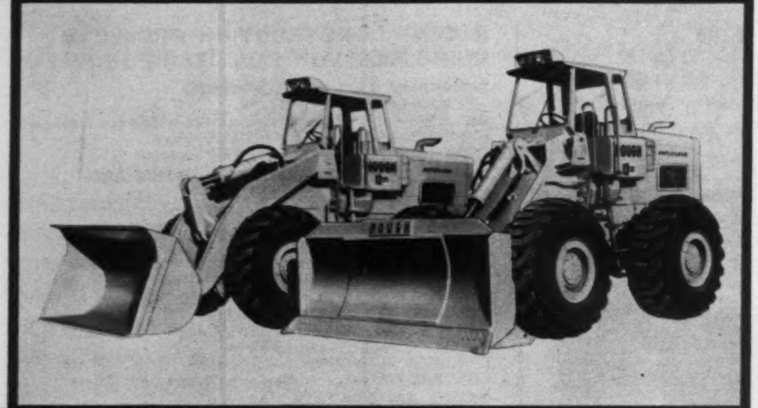

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Reader Comment

Key to Reform

SIR—Your editorial "It Takes Two" (ENR Jan. 19, p. 92) regarding the bribery charge in the New York City Plan Examining Department was timely and to the point. There are, however, some ideas I wish to submit which, in my opinion, are pertinent to the problem.

Admittedly, most professional groups are apathetic and do not wish to take the time to become involved. Unfortunately this attitude is the same as that shared by the general public, which must take part of the blame for inefficiency and corruption. In too many cases a builder prefers to pay bribery. By doing this the builder gets breaks that mean less competition and a greater financial return.

Another point is that political appointees to supervisory positions are rarely qualified and are allowed to create and perpetuate little dynasties for their own personal gain. This means that the people who can do the most good politically can get what amounts to a virtual monopoly.

Competent, honest personnel is not the final answer. Since this is the era of the organization man, an individualist is soon replaced unless he joins the bribe-takers or, at least, sees no evil, hears no evil and speaks no evil.

An informed, active public is a must for honest, efficient government. Unless some civic group or organization takes the time to find out the truth and ensure a program of informing the public, it is certain that the facts will probably never be told.

DAVID E. MILLER
Stockton, Calif.

A Masterful Mistake

SIR—In "Master Formulas for Plastic Design" by F. G. Eric Peterson (ENR Feb. 2, p. 65) the formulas seem to be correct algebraically, but there are several errors in the calculations. In the solution for the plastic moment (M.) in Case I, the Factor (-0.2) should be (-0.02). [That turned out to be our typographical error—Ed.] The presently indicated multiplication sign in the radical to the right should have been an addition sign. [Also our typo—Ed.]

Since we have available the basic principles of statics, which do not change because of the use of plastic

(*Reader Comment continued* p. 12)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

MODERN SHORING IDEAS

BY **REX® SPANALL**

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How to widen bridges—or build them! Here Spanall 730 is used for shoring and scaffolding (background) operations in widening the George Washington Bridge, New York. See how simplified the shoring is by the Rex-Spanall method.

Saving time on school job—Spanall 46 shores out college dormitory building. This Spanall member handles spans from 4'2" to 6'11" to speed up narrow corridor and drophead work.

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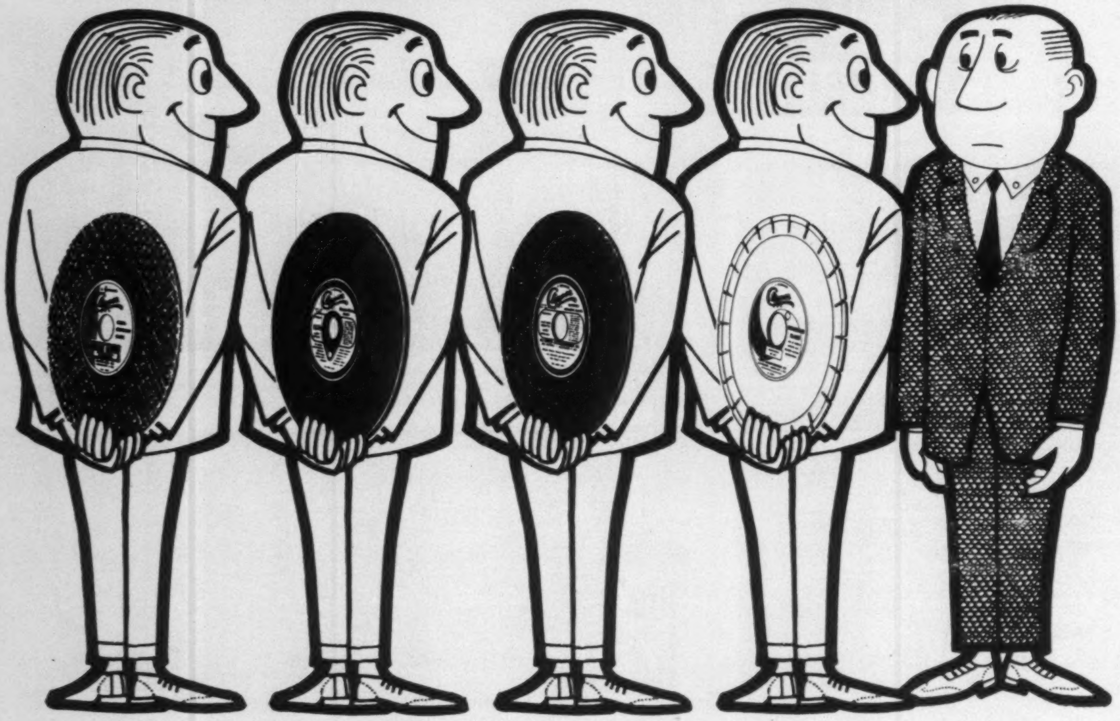

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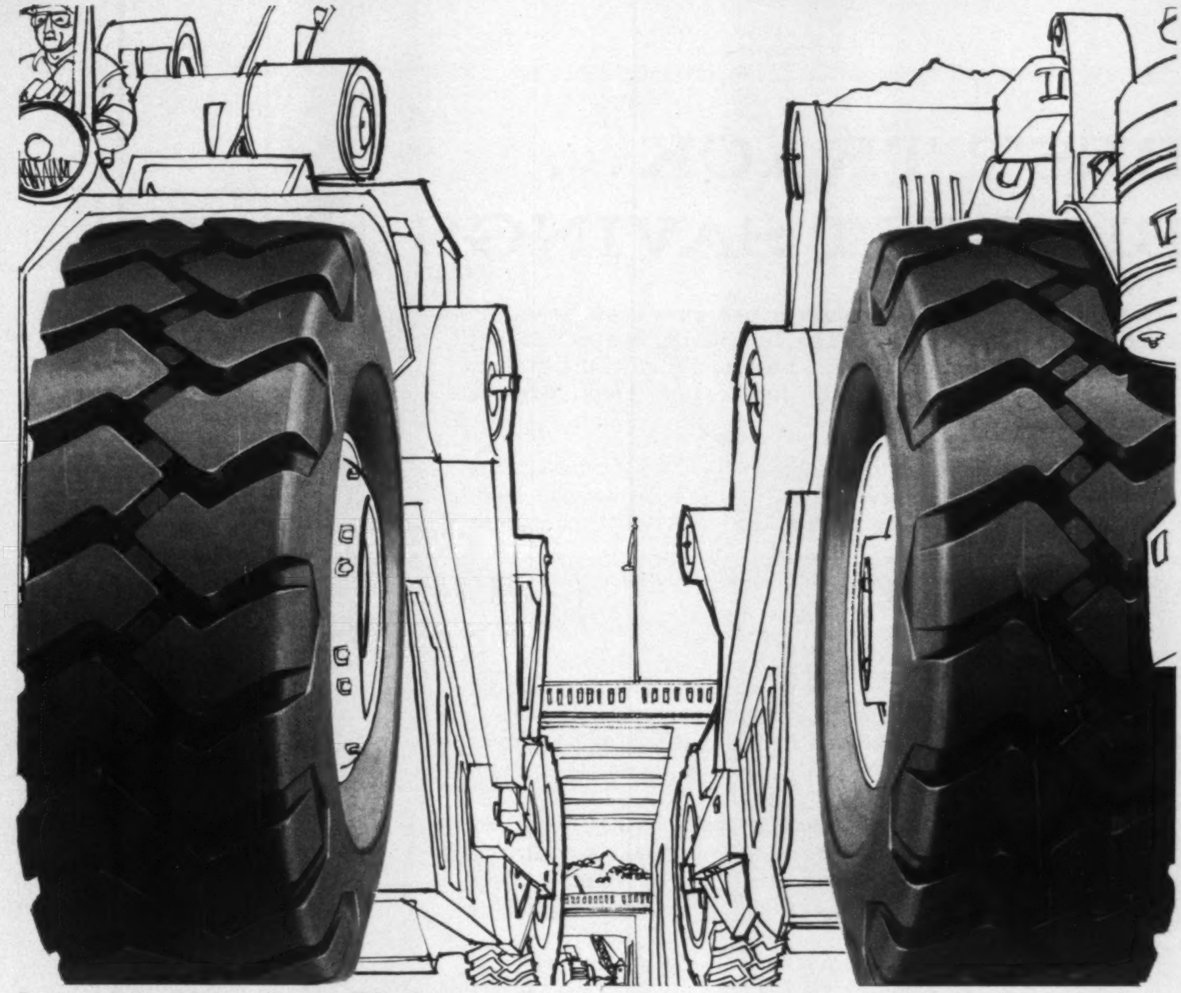

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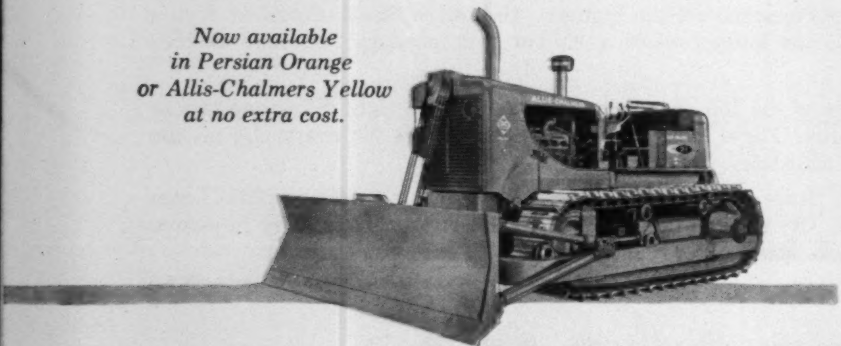

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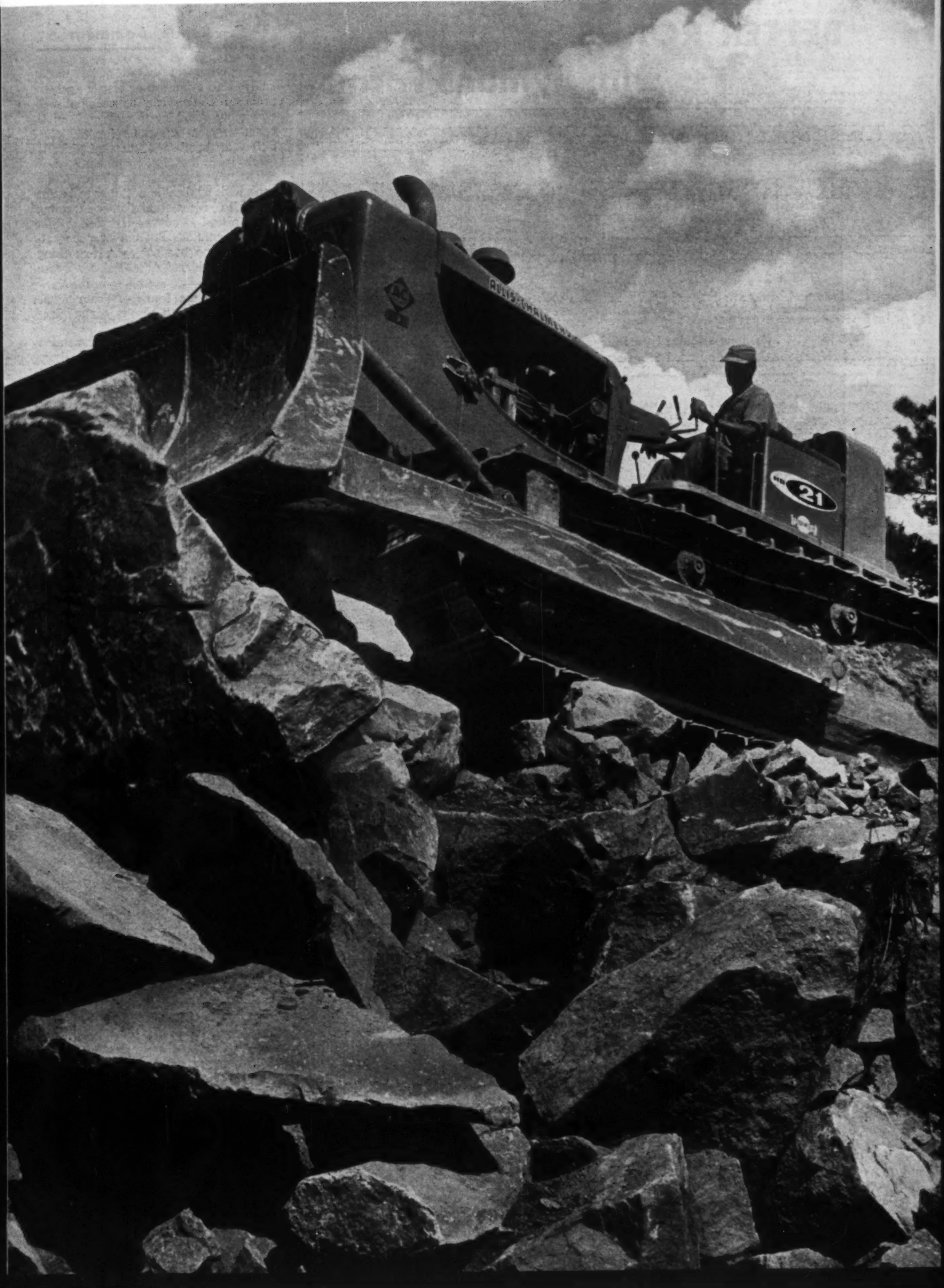
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21

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design, engineers should make plastic analysis an extension of elastic analysis procedures. This can be accomplished by simply sketching to scale the simple beam moment diagrams for the condition at hand and then graphically determining the plastic moment.

The use of graphics in plastic design analysis is applicable not only to beams but also bents and other framing mechanisms. The writer feels that graphic solutions not only reduce calculation time but act as self-checking devices which make the designer aware of the relation of moments in the various parts of the frame or beam better than the unrelated results of an algebraic analysis.

Mr. Peterson should be commended for his work on the algebraic analysis and for the stimulation of thought and interest by other engineers in more widespread use of plastic design.

PAUL GORDON
Chicago, Ill.

Editor's Note: Mr. Peterson, the author, also discovered a typesetting error. The distance A to C in the interior-span diagram should read *kL*, not *aL*. Also, Mr. Peterson's consulting practice is conducted in Albany, Calif., not Solano, Calif., as noted.

Another Pioneer

SIR—I have just read your article New Tool for Job Management referring to the Critical Path Method of scheduling (ENR Jan. 26, p. 25).

I also note at the top you say "Perini Corp. Pioneers."

I would like to say that our firm was associated with Mauchley Associates and took courses in the U. S., I believe either before or at the same time as Perini Corp., and that we have just topped out a 34-story skyscraper in Montreal for Canadian Industries Limited, using this method exclusively. The project that Perini refers to in Montreal is, I believe, at the 8th floor level at this time, although it got underway only one week after the CIL project.

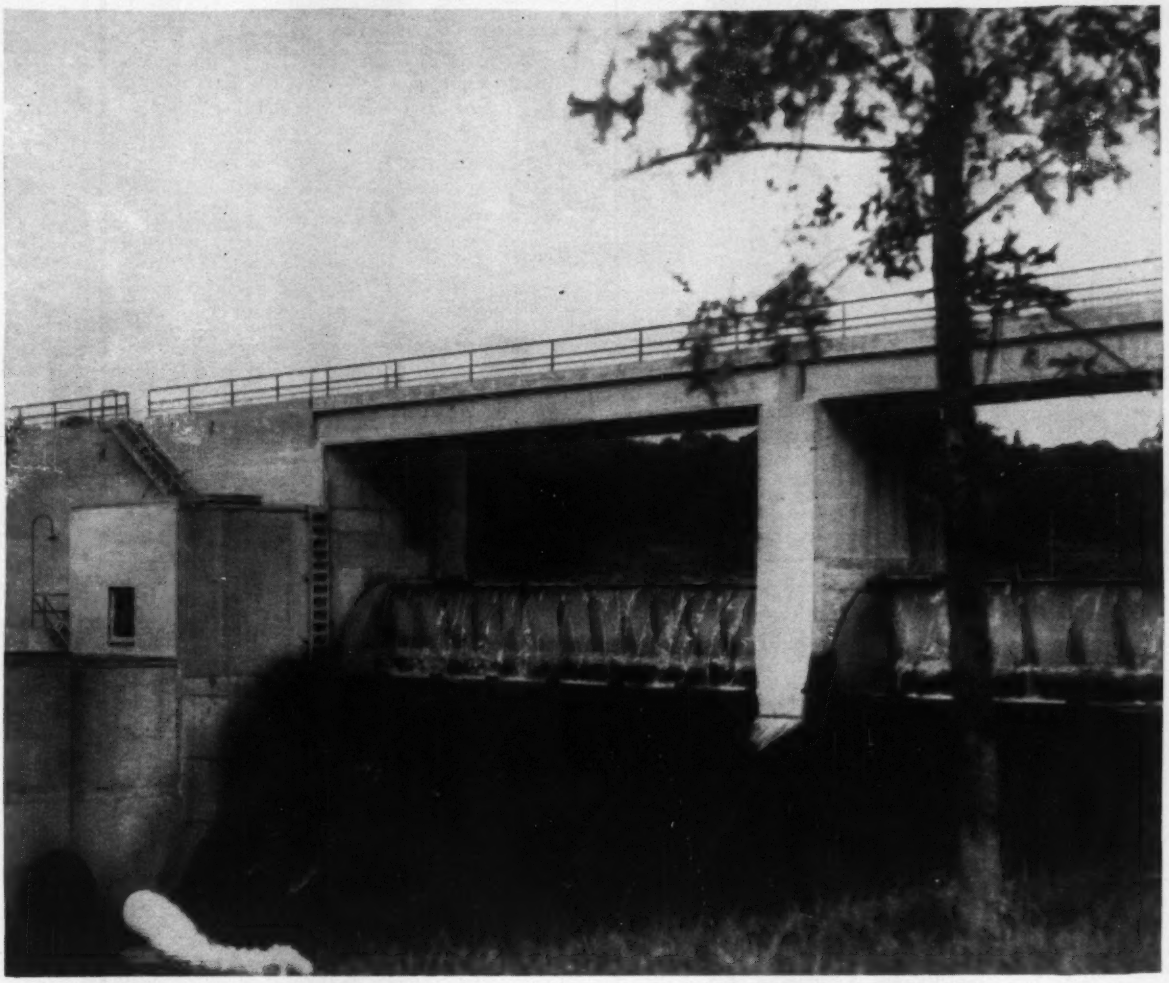
There is no question in my mind that CPM can be applied to office buildings of the multi-story variety equally as well as to petrochemical plants and process plants.

Despite the fact that we have been through the U. S. steel strike and the nationwide Dominion Bridge strike on this project, we have found CPM flexible enough to be adjusted so that we are still convinced our project will be brought in on time as originally scheduled with this method. Needless to say, we also are applying this in other phases of our business.

Perini may have pioneered in a great many things, but we certainly have co-pioneered this, if not done it first.

J. ERIC HARRINGTON
President
Anglin-Norcross Corp. Ltd.
Montreal, Que.

ALLIS-CHALMERS



The two **Bascule gates at the Lake deForest Dam,** Spring Valley Waterworks & Supply Co., N. Y., each 50 feet long by 5 feet high. A-C also provided 24- and 12-inch Howell-Bunger free-discharge valves, installed in the left-hand abutment, to regulate minimum flow requirements.

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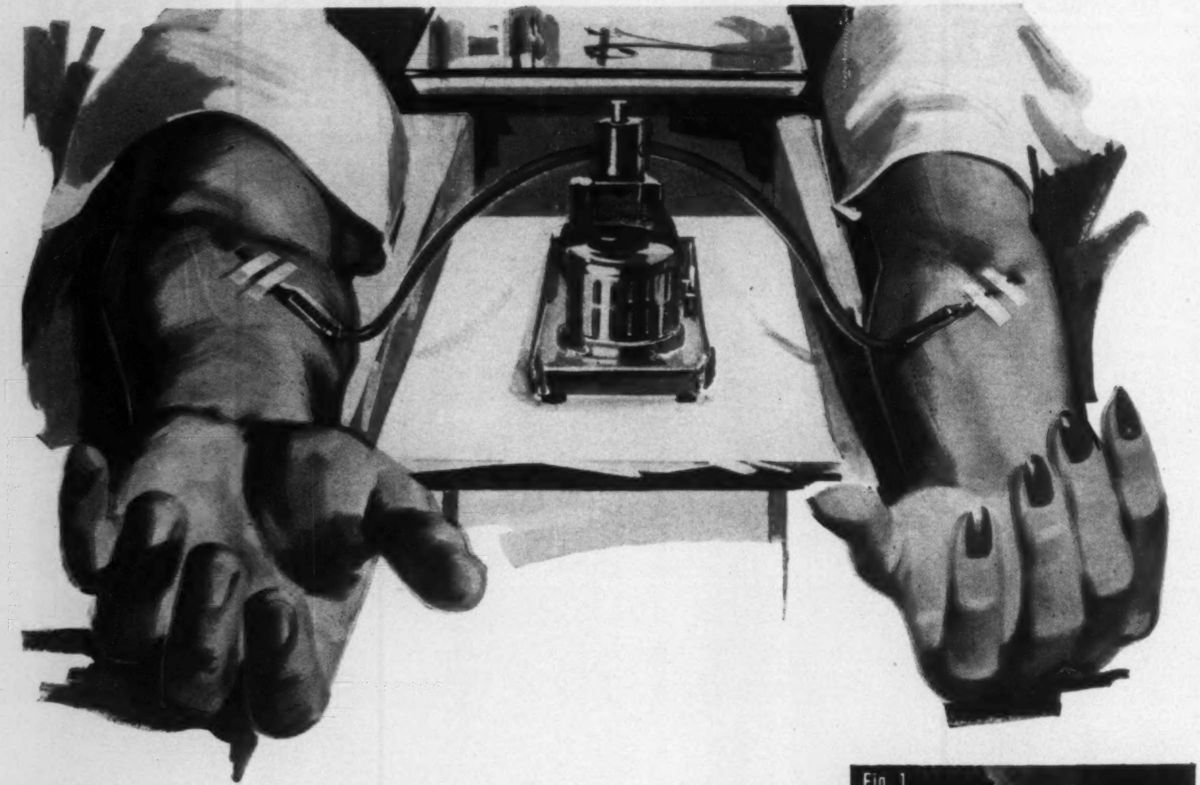

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Fig. 1

Fig. 2

Fig. 3

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ENGINEERING NEWS-RECORD

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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in the Applied Science & Technology Index, Business Periodicals Index and the Engineering Index.*

THE CONSTRUCTION WEEK

AN OVERSIGHT THAT RANKLES—Executives of the construction industry were openly upset last week when President Kennedy failed to put a contractor representative on the management panel of his new 21-member Labor-Management Advisory Committee. The only representative of the nation's biggest industry is on the labor side—Joseph Kennan, secretary-treasurer of the electrical workers international union.

UNABLE TO HOLD A GRUDGE—the Florida Road Board has reinstalled 14 engineers who had been dismissed for taking weekly payments from highway contractors. All will be on probation for a year and one will be demoted. Road Board Chairman John Phillips said the men "have been severely punished." The three companies that distributed the payola are now barred from bidding on road jobs, but they will be reinstated if it is determined they did not defraud the state with inferior work.

HOUSING STILL LIMPS—Private housing starts in January were at a seasonally adjusted annual rate of 1,098,000 units, according to the Census Bureau. This is 12% above the unusually low rate of December's 984,000 units, but 20% below the rate in January 1960. It is also below the figure that was reached in November of 1,216,000 units.

MORE MORTGAGE MONEY—The Federal Home Loan Board, the agency regulating 4,600 savings and loan associations, boosted those institutions' mortgage-lending potential by about $1 billion last week. However, it's not a shortage of funds that is depressing the housing industry—it is the shortage of people who would be willing to borrow dollars that are already relatively plentiful.

STATEN ISLAND TUNNEL OK'D—New York City expects to take bids in mid-year on driving and lining two 900-ft-deep shafts and a 6½-mile, 10-ft-dia tunnel under New York Harbor. It is the major item in a $31.1-million water supply project approved last week by the city's Board of Estimate, which controls city spending. The Board of Water Supply breaks down the estimated cost of $24.5 million for the tunnel, shafts and appurtenant works and $6.9 million for a pipeline and covered reservoirs in Staten Island (ENR Dec. 8, 1960, p. 23).

ANCESTOR WORSHIP?—The only new item in the $27 million worth of capital improvements proposed by the Citizens Advisory Committee in Toledo, Ohio, is a new $582,000 house for 60 great apes at the Toledo Zoological Park. One dissenter thought it would be better to sell the gorillas than spend the money, saying he believed in "people first, animals second." He was outvoted.

GENERAL ELECTRIC

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GENERAL ELECTRIC

WASHINGTON OBSERVER

- **Congress gets Kennedy's school plan**
- **Udall stresses public power development**
- **Blatnik back in business**

- **President Kennedy's $2.3-billion aid-to-education program got a mixed reception in Congress.** It is slightly more modest than had been anticipated, encouraging supporters to believe passage is likely. But it still contains a provision for teachers' salaries that is ardently opposed by many influential congressmen.

Mr. Kennedy wants federal-aid funds to total $666 million in the first year, $766 million in the second year and $866 million in the third year. Money would be distributed on an equalization formula based on the per capita income of each state in relation to its school population. Each year, 10% would be set aside to meet special needs of depressed areas and slum neighborhoods.

A new Kennedy proposal would create a loan fund to help colleges build classrooms, laboratories, libraries, etc. He suggested $300 million a year for five years in the form of long-term, low-interest rate loans.

Expansion of the college housing program is also proposed. The President suggested $250 million a year for five years in loans. The recent rate has been $150 million to $175 million a year, but the fund is now exhausted.

The Kennedy proposal is designed only as a "modest" beginning. He sees a need for 600,000 new public school classrooms in the next 10 years, with local communities reaching the end of their tax resources to carry the extra load.

—

- **Interior Secretary Stewart Udall reveals a clear preference for federal public power development.** Both in a staff memo and in a meeting with the press, he puts strong emphasis on power development that calls for increased federal planning and construction.

Mr. Udall's plans are deliberately general so far. But the specifics, when they are forthcoming, will be based on a five-point policy that is remarkably similar to one outlined by Harold Ickes in 1946. Mr. Udall says the new Administration considers public power a "necessary good" rather than a "necessary evil." He is not, he says, hostile to private power—but "We're not running out searching for ways to let private industry have access to major hydroelectric sites."

A switch from the less aggressive Eisenhower program is clearly in view. More and more federal construction starts can be expected both for power generating facilities and transmission lines.

—

- **The Blatnik House subcommittee on roads is ready to resume investigations early in March.** First on the agenda is an inquiry on disposition of buildings acquired to make way for Interstate highway projects in Florida. After the Florida hearings are out of the way Rep. John A. Blatnik (D., Minn.) plans to check into alleged irregularities in Georgia, West Virginia and New Mexico.

Complaints in the three states are said to involve irregularities similar to those found in Florida. The subcommittee in December disclosed that five contractors in 4½ years had passed out between $55,000 and $75,000 in gifts and cash to 33 Florida Road Department employees.

The Blatnik subcommittee is seeking $335,000 in each of the next two years for its investigations. Congress gave it $295,000 last year.

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Speed construction, Kennedy orders . . .

But It's Easier Said Than Done

Asked at a recent press conference whether he had run into any unanticipated problem in his new office, President John F. Kennedy replied: "It's easier to sit with a map and talk about what ought to be done than to see it done."

Last week, as the Administration came to grips with the recession, the chief stumbling block was the gap between what it thought ought to be done quickly and what, in fact, could be done quickly.

Construction, of course, is in the forefront of the President's anti-recession nostrums. It has a heavy role in all fields where action has been taken or is contemplated. Among them:

- **The highway program**—The Department of Commerce has released $724 million in fourth quarter federal funds for use immediately.
- **Military spending**—The Defense Department has ordered a speedup in military spending, including $40 million for construction.
- **Education and health facilities**—The Department of Health, Education and Welfare is about to distribute $350 million for school construction in federally impacted areas, for hospitals and for municipal sewerage construction.
- **Urban renewal**—The Administration has asked state and local governments to find ways to get some $2 billion worth of jobs under contract.
- **Reclamation and power**—The Bureau of Reclamation's design and specification staff has gone on a six-day week to speed plans for projects. The President is sure to ask for new public works starts in his budget, due within a week.
- **New industrial plants**—The President will soon recommend to Congress tax incentives to encourage business spending on new plant and equipment.

Much of the current flurry of anti-recession activity within the Administration is a speedup of projects that require no further action in Congress. The work has been authorized, the money has been appropriated. But in such areas as roadbuilding, urban renewal, schools, hospital and sewage treatment plants, there will be no dirt turned until the appropriate state or local authority says go.

In other areas, housing and tax incentives, for example, Congress will have to act. As yet there is no indication that the legislative branch views the economy with anything like the sense of urgency so evident in the Administration.

Here's what's being done in those construction areas where the President has ordered action.

I. Highways

Among the Administration's first anti-recession measures was an attempt to force the pace of contract awards on the Interstate and ABC highway programs. On February 3, the Department of Commerce released $724 million worth of fourth quarter reimbursement obligation funds for fiscal 1961 (ENR Feb. 9, p. 21).

That doesn't mean $724 million worth of contracts will be let immediately.

An ENR spot check of 20 states indicates some will increase the pace of contract awards. But many others will not, and for many reasons—cold weather, large balances of still-unobligated federal funds, engineering plans unfinished, schedule of right-of-way purchases too slow.

Among those that will take advantage of the government's offer are the five largest federal-aid roadbuilding states—California, Ohio, New York, Illinois and Texas.

California officials will use $58.9 million of federal funds immediately to get highway projects under way nearly two months ahead of schedule.

Ohio will put to immediate use at least $12.7 million in federal funds—$3.7 million for awards on ABC roads and $9 million on Interstate contracts scheduled to be let by the end of March—and additional federal funds on urban projects covered by March lettings.

Of **New York's** $36-million share of fourth quarter funds, the state will use $10 million on contracts to be let this week. An additional $8 million or $9 million will go toward purchase of right-of-way on the Interstate system. The $17-million balance will be used for lettings in March and thereafter this spring, as rapidly as possible.

Illinois will accelerate $17 million in contract construction utilizing $14 million in federal funds.

Texas plans to accelerate its program of contract lettings fast enough to deplete the fourth quarter funds by May.

But of the next five largest federal-aid states—Pennsylvania, Michigan, Virginia, New Jersey and Missouri—only two, Virginia and Missouri, will be able to make substantial use of the early release of funds.

Pennsylvania highway officials do not anticipate any appreciable acceleration. Cold and snow have brought highway construction there to a standstill.

Along with California, Pennsylvania and Virginia have the country's largest current balances of unobligated federal highway funds for fiscal 1961.

(Turn the page)

Michigan, which is already embarked on one of the largest roadbuilding programs in the country, will be unaffected by the early release of federal funds. The state is building highways with funds from the sale of bonds issued in anticipation of federal-aid apportionments.

A similar situation exists in **Connecticut**, where acquisition of right-of-way and award of contracts on the Interstate system proceed through the sale of anticipation bonds.

Kentucky, similarly, will not speed contract awards. The state had decided previously to proceed with projects in excess of reimbursable obligations, as permitted under the reimbursement planning procedure established by the Bureau of Public Roads.

Sever winter weather has closed down highway construction in **New Jersey**, and the highway department had already increased the tempo of bid advertisements just before the fourth quarter funds were released.

More than 25% ($4.9 million) of fourth quarter funds will be advanced to the March letting in **Missouri. Virginia** will spend $7 million (of $23 million) ahead of schedule.

Other states where contract awards will be accelerated are Kansas, Colorado and North Carolina.

Maine's position is typical of that in several states. According to Vaughan Daggett, chief engineer: "In December, 1960 an advertising schedule was formulated and released. It was based on availability of engineering plans. Because of limited engineering manpower, it will not be possible to speed up that schedule to any marked degree, although it is planned to include one major contract which was not originally anticipated."

Florida is among several states already moving "at maximum rate on federal-aid contract awards commensurate with available state matching funds, with little opportunity of acceleration due to early release of fourth quarter funds."

In the last six months, **Maryland** accelerated contract awards on three major expressway projects. As a result, the state highway commission intends to use the newly available federal funds to begin immediate development of plans and acquisition of right-of-way for sections of the Capital Beltway in Prince Georges County. In Washington, D. C., funds probably will be used to advance acquisition of right-of-way on several Interstate projects.

II. Military Construction

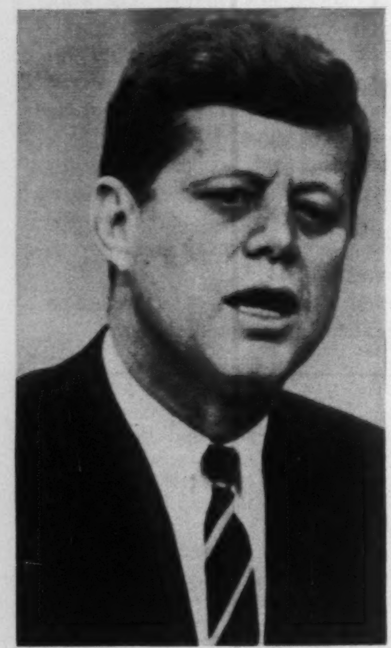
As part of the anti-recession program, the Pentagon is reviewing construction schedules for fiscal '62 to see how to speed up the award of contracts. It already plans to award about $40 million worth of construction scheduled for the current fiscal year two to three months earlier than planned.

Defense Department officials figure some $500 million worth of fiscal '62 construction orders can be placed ahead of original schedules. This is out of a total $1.2-billion program now planned for the fiscal year, which starts July 1.

These would be contracts to be awarded over the next eight or nine months rather than spread over the July 1961-June 1962 period.

Congress must first vote the authority for the advanced construction contract-

Who's Who in the



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Rear Adm. H. G. Clark, Commander, Naval Construction Battalions, Pacific Forces, Pearl Harbor, Hawaii

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John A. Derry, Director Div. of Construction and Supply ing and provide at least part of the funds, however, before enactment of the regular construction appropriation.

A Pentagon construction policy official explains the plan this way: "We are looking at projects which lend themselves to expeditious placement, those that are simple in design and can be quickly advertised."

Contracts to be placed earlier—assuming Congress approves—would be for routine projects that require a maximum amount of unskilled or semiskilled labor. Examples: roads, replacement or repair of existing physical plants, construction of buildings.

This would seem to eliminate ICBM installations and other complex facilities associated with weapon systems from the accelerated anti-recession contracting plan.

But a Pentagon spokesman says award of construction contracts for two ICBM bases seems sure to be advanced several months under the Kennedy anti-recession push. These are for the three-squadron Minuteman facility at Ellsworth AFB, Rapid City, S. D., and the two-squadron Titan II facility at Griffiss AFB, Rome, N. Y. Both were planned for award in the fall of 1961, now they are likely to be placed out on contract this summer or earlier.

Both will be hardened sites. Cost of Ellsworth is roughly estimated at $40 million; the cost of Griffiss will be $80 million. Under current schedules, Griffiss will be the last of four Titan II bases built.

III. Money from HEW

The $350 million about to be released by the Department of Health, Education and Welfare represents the unobligated balance of appropriations as of January 31.

By far the largest chunk of this money will go for hospital construction under the Hill-Burton program, a matching program with states and municipalities. Available for hospitals is $245.9 million.

Aid for schools in federally impacted areas (areas where such government activities as military bases has brought an unusual increase in school population) will get $48 million in federal aid. And there's another $38.4 million that will go into direct federal school construction.

For construction of waste treatment facilities, another matching program, there's $18.7 million available.

IV. Urban Renewal

The President last week urged the nation's mayors and housing officials to report to him by the end of this week on what can be done to speed work on some 300 urban renewal projects. These are jobs that have begun or for which final plans have been approved.

These 300 projects involve about $2 billion in federal land-purchase funds and much more in local construction.

The Housing and Home Finance Agency hopes to have an analysis of speedup prospects ready by the end of the month.

The Administration is also pushing local authorities to speed work of other building jobs in which the federal government participates—college housing, public facilities and public housing.

(*Turn the page*)

Kennedy Administration

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

James E Webb, Administrator

DEPARTMENT OF THE INTERIOR

Stewart L. Udall, Secretary
James K. Carr, Undersecretary
Kenneth Holum, Assist. Secretary for Water & Power
Floyd E. Dominy, Commissioner of Bureau of Reclamation
Grant Bloodgood, Chief Engineer (located in Denver)

FEDERAL POWER COMMISSION

Joseph C. Swidler, Chairman
James K. Kuykendall
Frederick Steuck
Arthur Kline
Howard Morgan
Francis L. Adams, Chief of the Bureau of Power

EXPORT-IMPORT BANK

Harold F. Linder, President & Chairman
A. Carl Cass, Chief, Engineering Division

INTERNATIONAL COOPERATION ADMINISTRATION

Henry R. Labouisse, Director

DEVELOPMENT LOAN FUND

Frank M. Coffin, Managing Director

SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION

Martin W. Oettershagen, Administrator

DEPARTMENT OF COMMERCE

Luther H. Hodges, Secretary
Clarence D. Martin, Jr., Undersecretary for Transportation
Rex Whitton, Federal Highway Administrator
Frank B. Ellis, Director, Office of Civil & Defense Mobilization

SMALL BUSINESS ADMINISTRATION

John E. Horne, Administrator

GENERAL SERVICES ADMINISTRATION

John Moore, Administrator
Karl E. Wallace, Public Building Commissioner

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Abraham A. Ribicoff, Secretary
Dr. Luther L. Terry, Surgeon General
Mark D. Hollis, Asst. Surgeon General, Chief Sanitary Engineering Officer
Dr. James V. Lowry, Chief, Bureau of Medical Services.

FEDERAL AVIATION AGENCY

Najeeb E. Halaby, Administrator
George R. Borsari, Chief of the Airports Division

U.S. MEMBERS OF INTERNATIONAL JOINT COMMISSION

Edward A. Bacon, Chairman
Francis L. Adams, FPC Power Bureau Chief
Eugene W. Weber, Corps of Engineers Planning Div. Chief

HOUSING AND HOME FINANCE AGENCY

Robert C. Weaver, Administrator
Neal J. Hardy, FHA Administrator
James B. Cash, Jr., Deputy FHA Administrator
Sidney H. Woolner, Community Facilities Administrator

VETERANS ADMINISTRATION

John S. Gleason, Jr., Administrator
Whitney Ashbridge, Assistant Administrator for Construction

ARCHITECT OF CAPITOL

J. George Stewart

WHITE HOUSE STAFF

Jerome Wiesner, Special Asst. for Science Affairs
David E. Bell, Bureau of Budget Director
Walter W. Heller, Chairman, Council of Economic Advisers

On college housing loans, HHFA has offered to advance construction before execution of the final loan agreement where only time-consuming details remain to be wrapped up.

On public facility loans, interest rates on bonds have been reduced by ¼%, and the provision limiting loans to cities of under-10,000 population has been removed, making cities of any size eligible. (Until now only those larger cities in areas of high unemployment were eligible for these loans.) Further, the loans have been broadened to cover public buildings. They had been limited to waterworks, gas transmission lines and sewer works. The agency has some $50 million available for commitment at the present time.

V. Reclamation Speedup

Reclamation Commissioner Floyd Dominy expects the speedup in the bureau's Denver offices to advance a number of contract awards from one to 10 months. The aim is to let contracts by June 30 for all jobs for which funds are available. Included are canals, irrigation works, hydro projects and power transmission lines.

The first big contract under the speedup will probably be awarded in March for construction of Yellowtail Dam and power plant, on the Big Horn River near Hardin, Mont. The work includes 1.66 million cu yd of concrete and 200,000 kw of generating capacity.

Yellowtail was already so close to the bid-opening stage, however, that the acceleration policy advances the project by only a couple of weeks.

The bureau is also ordering equipment in advance for some jobs to shorten the equipment-purchase interval that usually follows contract awards. This requires specification changes in some cases.

The short-term speedup is likely to be followed by longer-range action.

The next fiscal year is almost sure to bring an increase in federal power construction. Where and how much will probably be detailed in the President's budget recommendations to Congress about March 1.

Construction money will probably be forthcoming for Libby Dam, on the Kootenai River in Montana, assuming the U.S. Senate and Canadian Parliament ratify the Columbia Basin cooperative development treaty signed last month (ENR Jan. 26, p. 29).

New authorizations are likely this year or next on some sizable projects, including: Burns Creek Dam, Snake River, Idaho; Fryingpan-Arkansas Project, Colorado; and several Alaskan hydro projects.

Both Interior Secretary Stewart Udall and Agriculture Secretary Orville Freeman will press for more transmission line construction. Secretary Udall has emphasized the need for building large federal transmission interconnections, not only between federal dams and load centers but also between federal power systems in different regions. Secretary Freeman says he will try to make as much money as possible available under the Rural Electrification Administration's loan program for cooperative generation and transmission facilities.

VI. Prodding Plants

President Kennedy has promised to recommend to Congress new incentives to business to encourage modernization of plant and equipment.

No one knows for sure just what form the President's recommendations may take—or what precisely may be voted by Congress.

There are two types of recommendations under discussion: One would give a businessman a new kind of tax credit—a deduction from the final tax bill he would otherwise pay, based on the amount he spends for plant and equipment during a given year; the other would liberalize the present system of depreciation allowances. At the moment Kennedy advisers lean toward the tax credit plan.

Here's how it would work:

A company would deduct from its tax bill a percentage of the amount by which its spending on plant and equipment exceeds its depreciation allowances for the year. Suppose a company spends $100,000 this year, and has a total cumulative depreciation allowance of $80,000. It would be allowed to deduct from the tax it would otherwise pay a percentage of $20,000. If the percentage turns out to be 10%, for instance, it could deduct $2,000 from its tax payment. This has the effect of reducing the cost of its plant and equipment by the $2,000. A variation of this idea would eliminate the tie-in to depreciation allowances. Thus on spending of $100,000, a tax credit of 2% would give a $2,000 deduction.

While there is a lot of jockeying going on behind the scenes, most of the companies and industries interested in tax incentives are holding back, awaiting the President's message to Congress on the subject, which is now expected around mid-March.

There is general agreement that some legislation is very likely to be passed during the present session. The only significant voice so far raised against the idea is that of organized labor. Walter Reuther testified before the Joint Economic Committee against any such incentive. His reasoning: It doesn't make sense to encourage manufacturers to expand now, when so many are running their plants way below capacity because of lack of demand.

Base Investigation

Contractors lay the blame for delay on spec changes

Delays and excessive costs in the ICBM base construction program were blamed on a heavy flow of change-orders and overlapping administration last week by representatives of some 20 major contractors.

Spokesmen for the builders testified at closed hearings of the House military construction subcommittee of the Appropriations Committee, which is investigating a lag in missile base construction.

The subcommittee is expected to report that the delays in reaching initial construction target dates and the unanticipated increases in construction costs are the result of massive specification changes ordered in the program.

The subcommittee is also expected to ask the Pentagon for a clearer definition of Air Force and Army Corps of Engineers responsibilities on ICBM base construction.

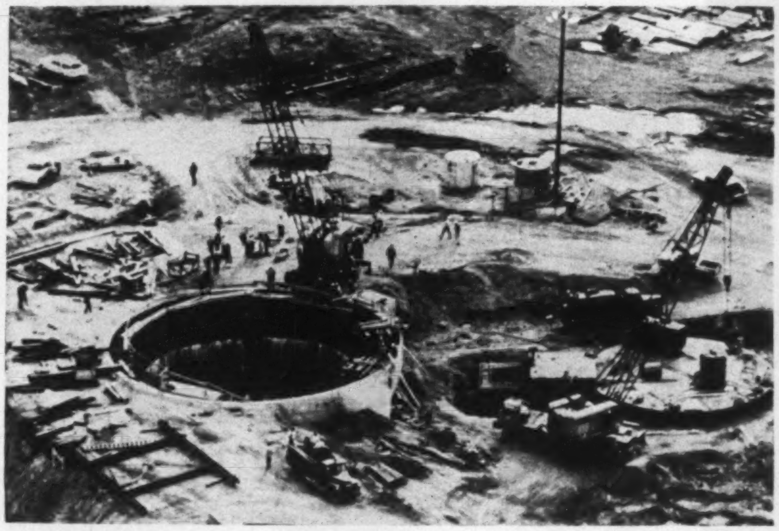
The contractors reportedly told the subcommittee that they have had no control over delays in building the bases, that close to 4,000 change-orders and modifications of specifications have held back work after award of the contracts.

They also cited the vast numbers of changes in construction plans as the chief factor for jacking up costs. They said such costs were "unascertainable when bids were invited."

Some contractors reportedly brought up the problem of handling complex, unprecedented types of construction such as ICBM bases under lump-sum, fixed-price contracts. But industry sources say that the consensus is still against the use of cost-plus-fixed-fee type contracts. Under the latter types of arrangements, defense contractors' profit allowances are normally considerably lower than under a lump-sum contract.

This issue is apparently behind the delay in awarding the Minuteman ICBM contract at Malmstrom Air Force Base, Mont. Negotiations are still under way with at least five joint ventures that submitted proposals on February 7. The Pentagon expects to announce a contract award by February 25.

Sources close to the negotiations say the talks have been snagged by issues such as target cost estimates, maximum cost allowances, guaranteed and minimum profits. The Defense Department is apparently trying to arrange a complex formula embodying each of these factors. Says one source: "In effect, they are negotiating a cost-type contract that would come out to look like a fixed-price, lump-sum contract."



Six killed and 14 injured as . . .

Crane Crashes Into Atlas Silo

A board of investigation is clambering about a fire-blackened Atlas launching silo near Roswell, N. M., to determine the cause of an accident that killed six construction workers and injured 14 others last week.

A 20-ton crane used to move men in and out of the 172-ft-deep silo toppled over the edge (see picture), crashed to the bottom and exploded on impact.

The crane and its crumpled 75-ft boom wiped construction workers off the silo wall as it plunged downward and crushed others at work at the bottom of the 52-ft-dia shaft.

Gasoline tanks on the crane ruptured when the rig hit bottom. The gasoline ignited, probably from sparks or hot welding equipment, and the tanks exploded, sending flames leaping up the pit and spraying men at the bottom with burning fuel. "It looked like Dante's Inferno," said Maj. Stanford Polonsky, Engineer executive officer.

The concrete-lined silo is one of 12 under construction in the vicinity of Walker Air Force Base to serve as bomb-proof housing for a squadron of Atlas intercontinental ballistic missiles.

A four-company joint venture has a $22-million contract for the project—Macco Corp., Paramount, Calif.; Raymond International Inc., New York City; Henry J. Kaiser Corp., Oakland, Calif.; and Puget Sound Bridge and Drydock Corp., Seattle. Macco is the sponsoring company.

There have been various reports on the cause of the accident from men on the scene, many of them contradictory. One was that the crane was unattended, but this has been denied.

Neither Frank Cornwall, president of Macco, nor D. L. Orendorf, deputy area engineer for the Corps of Engineers, would comment on the cause of the accident or on the extent of damage.

The board of investigation, composed of representatives of the Corps of Engineers, contractor and a subcontractor, is working at the site now. An official of the Corps of Engineers, contracting agency for the project, heads the board.

Macco would not say how far along they were in construction of the missile silo or estimate what amount of delay the accident had caused.

C. R. McMillan Dies; Raised Bidding Issue

Claude R. McMillan, South Carolina's Chief Highway Commissioner since 1947, died last week. He was 61.

In 1953, Mr. McMillan was the central figure in a competitive bidding controversy. His invitation to consulting engineers to bid competively for the design of superstructure for a bridge in South Carolina was challenged by the American Society of Civil Engineers (ENR Nov. 19, 1953, p. 167). He argued that his state's laws required him to advertis for bids; he was supported by legal opinion in his state. But he lost his membership in the ASCE, and consultants who accepted his invitation to bid had their memberships temporarily suspended.

Mr. McMillan was president of the American Association of State Highway Officials in 1958. A career man with the South Carolina Highway Department, he served the agency in various titles since 1923. He graduated in 1922 from the University of South Carolina and received an honorary degree from Clemson College in 1957.

Row Over Tallamy

His contract with N. Y. Thruway draws fire

Democrats in the New York State legislature are clamoring for an investigation of the consulting contract the State Thruway Authority signed with ex-Federal Highway Administrator Bertram D. Tallamy.

The Democrats were slightly nettled when they first heard that the authority's former chairman (1950-1956) was engaged at $200-a-day as a consultant for study of a maintenance program for the Thruway (ENR Feb. 9, p. 17).

But they accused the Republican administration of political patronage and nepotism when they learned that the contract includes subcontracting work by a consulting firm in which Mr. Tallamy's son is an associate member.

The contract specifically prohibits subbing out work to any firm other than Senior, Bissell and Bronkie of Buffalo, without approval of the authority.

Mr. Tallamy's son, Bertram Fisk Tallamy, was advanced from employee to associate member of Senior, Bissell and Bronkie on January 19.

The younger Mr. Tallamy graduated from Rensselaer Polytechnic Institute as a civil engineer in 1954. He's been with SB&B since 1957.

"My associateship was announced on January 19, but it was effective as of January 1," he said. "At that time neither my firm nor I knew of my father's plans."

The contract calls for the Thruway Authority to pay the salaries and expenses of all of Mr. Tallamy's employees and all of the subcontractors' employees working on the project.

In addition to the $200-a-day he receives personally, the elder Mr. Tallamy's firm will get an amount equal to 100% of the total of salaries and expenses paid to his firm and the firm his son works with. There is a $200,000 ceiling on the job.

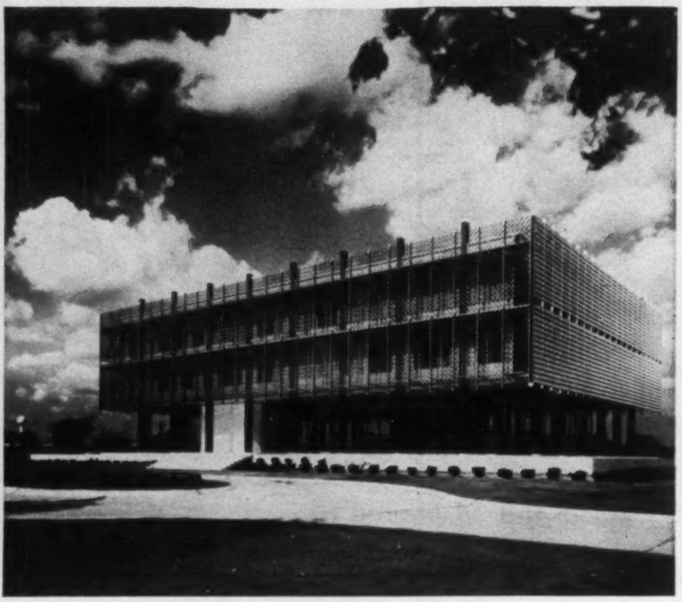
R. Burdell Bixby, chairman of the authority, defended the contract in a five-page statement.

"The presence of Mr. Tallamy's son in the Buffalo firm was known to the Authority when the contract was signed," Mr. Bixby said. "He is a licensed engineer and fully competent to perform such services as his firm may assign to him.

"The fact that he is Mr. Tallamy's son does not disqualify the firm from participating in the study. Attempts made to smear the Authority, Mr. Tallamy and his son are disgraceful."

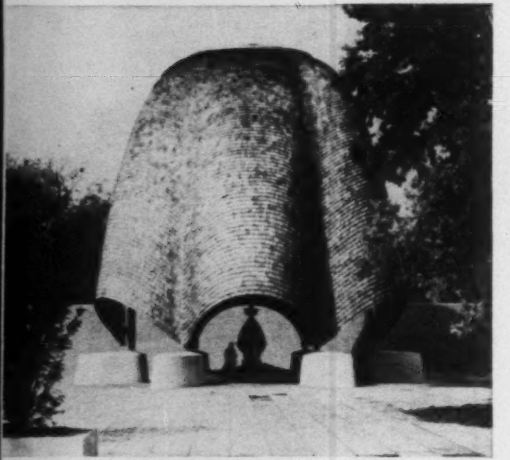
State Controller Arthur Levitt, a Democrat, has asked the authority for the details of the arrangement to see "if they are in the best public interest."

HEADQUARTERS, ten stories high, for Pepsi-Cola.



OFFICE BUILDING, three stories high, for Reynolds Metals in Detroit.

AIA Picks Seven

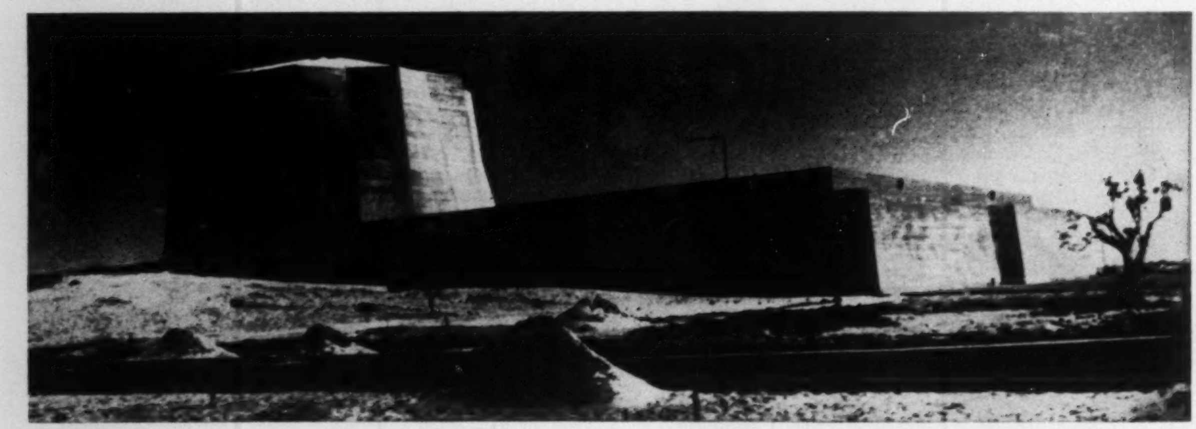


SHRINE is roofed by a fluted brick dome resting on six supports.

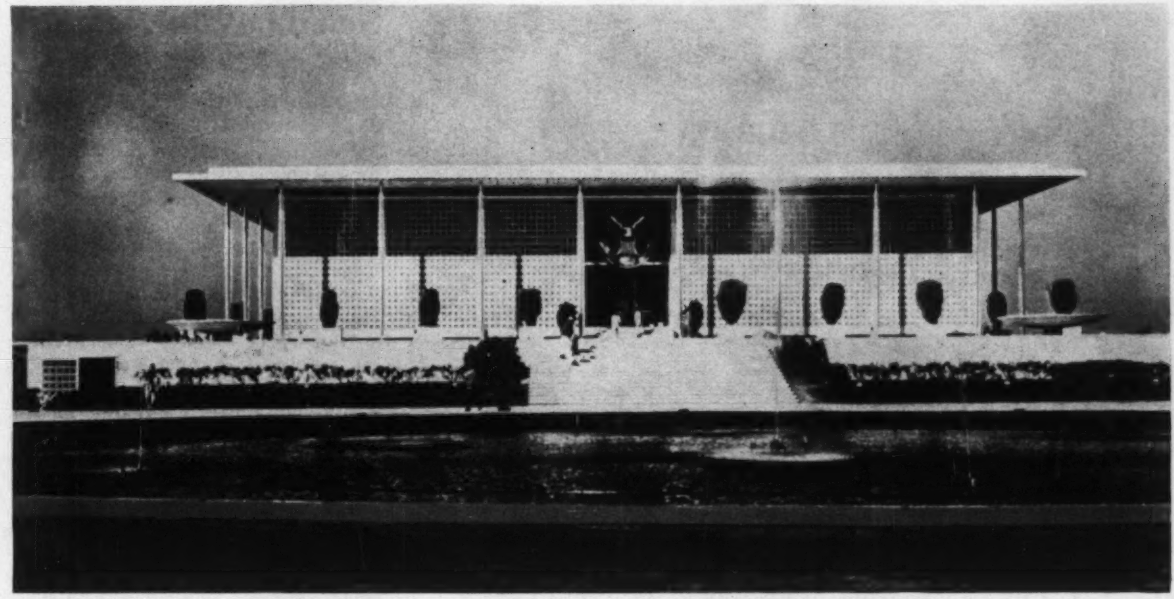
Seven buildings that went "far beyond mere competence and achieved true significance" in the opinion of a jury of outstanding architects have been chosen for American Institute of Architects 1961 Honor Awards. Certificates and plaques will be given to the designers and owners at the AIA annual convention in Philadelphia April 26.

The winners, including two abroad, cover a wide range of structures:

- U. S. Embassy, New Delhi, India. Architect Edward D. Stone of New York City used a concrete-block grill on the exterior to give the low, flat-topped structure a light, airy appearance. Peter W. Bruder of New York City was the engineer.
- Fernando Rivera Elementary School, Daly City, Calif. Architects Mario J. Ciampi and Paul Reiter of San Francisco roofed the sprawling, one-story school with folded plates, walled it with glass. Isadore Thompson of San Francisco was the engineer.
- Shrine, New Harmony, Ind. Philip Johnson, New York architect, laid out a fluted dome of brick supported at six points. Wilcox and Erickson of New York City were the engineers.
- Reynolds Metals Regional Sales Office Building, Detroit, Mich. Architect Minoru Yamasaki of Birmingham, Mich., shielded the upper two stories of the three-story structure with a gold-anodized aluminum grill. The steel



NUCLEAR REACTOR in Israel is a windowless structure of reinforced concrete. The huge mass of the nuclear container is at one end.



U. S. EMBASSY in New Delhi was designed to harmonize with Indian architecture and climate. Facade is a concrete-block grill.

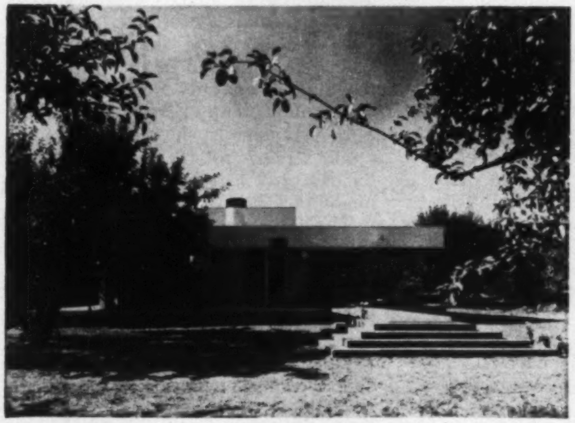
Buildings for 1961 Top Awards

columns are exposed on the exterior. Ammann & Whitney of New York City were the structural engineers.

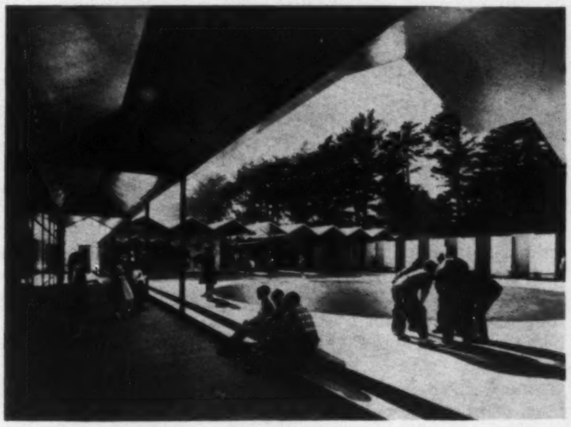
- Nuclear Reactor, Rehovot, Israel. New York architect Philip Johnson designed this windowless concrete structure. The massive reactor container is at one end. Lev Zetlin of New York City was the engineer.
- Pepsi-Cola World Headquarters, New York City. Skidmore, Owings & Merrill, New York architects, enclosed all stories of the 10-story office building above the first with glass walls. Severud-Elstad-Krueger Associates were the structural engineers and Slocum & Fuller the mechanical engineers—both of New York City.
- Summer House, Northville, Mich. Architects Birkerts & Straub of Birmingham, Mich., designed a mostly one-story structure, with a flat roof having a long overhang, circular chimney and glass walls.

The AIA jury also selected eleven Awards of Merit. Winners are Richard Dorman & Associates, Beverly Hills, Calif., for Ivory Tower Restaurant, Santa Monica, Calif.; I. M. Pei Associates, New York City, for Denver Hilton Hotel; Bay Group Associates, San Francisco, for Marin Bay Display Pavilion, San Rafael, Calif.; Weed-Johnson-Associates, Miami, Fla., for Coppertone Corp. office and warehouse, Miami; Charles R. Colbert, New York City, for a private residence, New Orleans, La.; and Henry Hill, San Francisco, for Moline Public Hospital, Moline, Ill.

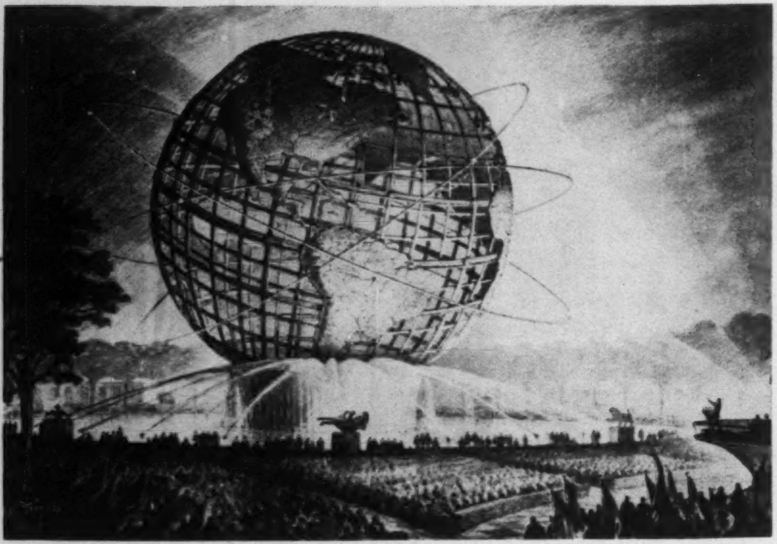
Also, Killingsworth Brady Smith & Associates, Long Beach, Calif., for an office building; Hugh Stubbins & Associates, Cambridge, Mass., for Unitarian Church, Concord, N. H.; Hertzka & Knowles, San Francisco, and Skidmore, Owings & Merrill, for Crown Zellerbach Building, San Francisco; Victor Christ-Janer & Associates, New Canaan, Conn., for Lincoln Commons Building, Lake Erie College, Painesville, Ohio; and John Carl Warnecke & Associates, San Francisco, for Willow Creek Apartments, Palo Alto, Calif.



RESIDENCE in Northville, Mich., is flat-roofed and glass-walled.



SCHOOL in Daly City, Calif., features folded-plate roofs.



Steel Sphere to Symbolize Fair

A giant globe, formed with stainless steel rings along meridians and parallels will set the theme for New York's 1964 World's Fair. Donated by the United States Steel Corp., it will remain as a permanent symbol in Flushing Meadow Park.

The globe, called Unisphere, will feature superimposed patterns of stainless steel mesh representing the continents and principal islands. Its polar axis will tilt 23½ deg from the vertical, simulating the earth's inclination.

The 120-ft-dia Unisphere will rise 135 ft from the site of the famous Trylon and Perisphere of the 1939 New York World's Fair. It will rest on a reinforced-concrete pedestal, about 20 ft high, which will become an island in a large pool.

A spectacular system of floodlighting will illuminate the Unisphere at night. Glass lenses with cut facets (like diamonds) will mark capital cities. Mountain ranges, represented in exaggerated relief, will cause shadows simulating sunrise and sunset with different plays of light.

Three stainless steel elliptical wire elements representing planetary orbits, will surround the globe. Point sources of light will speed along the wires, simulating satellites.

The pool surrounding the Unisphere will be a dodecagon of 350-ft width, which will also remain as a permanent park feature.

It will probably be built of reinforced concrete, with walls capped by a stone coping.

The World's Fair Corp. will finance the pool, the fountains and lighting, and the pedestal supporting the Unisphere.

Clarke & Rapuano, New York landscape architects and consulting engineers, made the preliminary design as consultants to the corporation.

$5-Million Job to 'Small Business'

"Small business" claimed victory over "big business" in Texas last week. The construction contract for an Air Force Base hospital went to the second low bidder because the lowest bidder was not "small business" as defined by the federal government.

Award of the project at Sheppard Air Force Base may renew the controversy that arose when the Fort Worth District Corps of Engineers first announced the job was to be "set aside" for small business (ENR Nov. 3, 1960, p 77). A howl went up then that was heard distinctly in the Washington, D. C., offices of the Chief of Engineers, the Small Business Administration and the Secretary of the Army (ENR Dec. 1, 1960, p. 29). The Associated General Contractors of America argued that the project, estimated to cost slightly over $5 million, should be thrown open to all comers because of its large size.

For a time, it looked as though the hospital would be withdrawn from the set-aside list.

Lawless and Alford, Inc., Austin, got the job for $4,482,246 over B. L. Abbott Construction Co., Houston, which bid $4,316,655. In either case, however, the price is still below the estimate of $5,028,415.

New Look in Schools

New York builds them into apartments and offices

Design of three schools announced for possible construction last week indicate that New York City may take a step toward solution of the problem of finding space for urban schools. All three—plus a fourth announced late last year—would combine schools with housing and office building projects.

One school would be included in a city-sponsored housing project in an overcrowded area of Manhattan. A second would be part of a housing project planned by a union for construction in the Bronx. The third school comes as part of a plan for a privately sponsored apartment-house project in Manhattan.

This last proposal parallels the plan announced last December for a combined commercial high school and office building in mid-Manhattan (ENR Dec. 15, 1960, p. 25).

There's been talk about "combination schools" for some time, but the projects announced last week are the first for which plans have ever come this close to construction contracts.

The first project has been developed jointly by the New York City Housing Authority and the Board of Education. It combines an 800-pupil elementary school with a 320-unit housing project. The development would occupy a block with high rise apartments at either end. The school would occupy a wing and parts of two floors in one building. Park and playgrounds would take up the center of the block. Michael J. Radoslovich, chief architect for the Board of Education, expects that the "combination school" can be built for $35,000 per classroom as compared with $50,000 usually allowed for conventional schools. The saving comes from two sources, he says: First, there's the economy of building in a larger project; second, limiting the school to elementary level eliminates large gyms and auditoriums.

In the Bronx, a small elementary school was included in the plans for a $96-million housing project sponsored by a union group (ENR July 7, 1960, p. 23). Originally, the school was to be a unit serving just the housing project, but Board of Education planners say it might now be expanded.

The third case—an elementary school as part of a privately developed apartment project—is still in the early stages of negotiations.

Due for settlement before the school can go ahead is the question of who pays what to whom. In the case of the commercial school-office building, the building would go up on city-owned land. The city would probably arrange a lease for building rights.

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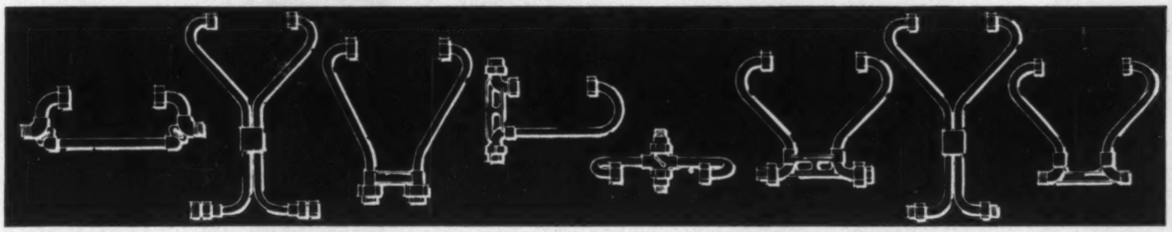

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City of Binghamton sees clear water ahead for a full generation

Westinghouse Powers-Up New Filtration Plant to Meet Rising Demands of Next 30 Years

Present population: 85,000—growth reaching at least 105,000 by 1975. This is the future for Binghamton, booming city in upstate New York. With this fact in mind, planning of their new 4,000,000-dollar filtration plant accented expandability for rapidly increasing water demands to 1990.

Westinghouse has provided a power distribution system that will assure this objective. With present pumps and treating equipment, total capacity is 31,000,000 gallons per day. Plant capacity can be expanded 50% during the 30-year period without additional substation, bus or switchgear equipment. Beyond basic flexibility, the electrical equipment will be called upon for absolute, 24-hour reliability for this projected long life span. Westinghouse power components are coordinated to work together, and will fulfill this objective also . . . dependability, with minimum servicing or maintenance.

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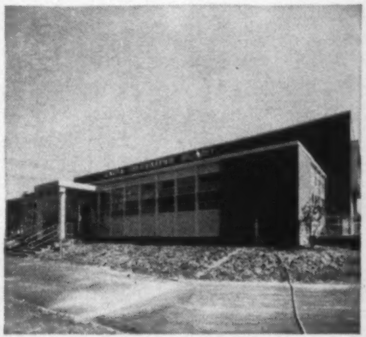
1. The Susquehanna gives up its water . . . Pipe gallery located under the filter operating floor houses raw water, backwash and waste water lines, control piping and valves.

2. Strength, beauty and simple utility . . . Plant exterior is finished in blue glazed brick, yellow porcelain enameled steel panels, anodized aluminum trim.

3. Utilized plant control . . . Main distribution center for new plant provides power to motor and auxiliary feeder circuits. Fed by 4000-ampere ventilated low-impedance bus duct, board consists of (right to left) plant service transformer and power panels; 480-volt switchboard with incoming line and motor feeder breakers of reliable DB design; control panels including flow and pressure indicators, gauges and master indicating lights to show status of all plant operating equipment. Entire unit was assembled by Westinghouse and delivered complete and prewired for fast, easy installation.

4. Mr. G. E. Rickard, Water Superintendent, checks ammeter reading at incoming switchgear and master control board with Mr. R. C. McNamara, City Engineer, who supervised over-all construction project.

5. Dependable power for 30 years . . . G. E. Rickard and R. D. Batley, Westinghouse Sales Engineer, discuss one of three Westinghouse SL transformers in plant outdoor substation. Present bank capacity is 2500 kva—future uprating to 2875 kva is possible through provisions for addition of forced air cooling. Westinghouse transformers feature exclusive Insuldur® insulation and Hipersil® grain-oriented steel cores to give extended life and higher efficiency. This substation, furnished by Westinghouse, also includes: 15-kv, 600-ampere, 100,000-kva IC oil circuit breakers; Type V disconnect switches; Type S station service transformer; main low-voltage bus as well as the integrated steel structure.



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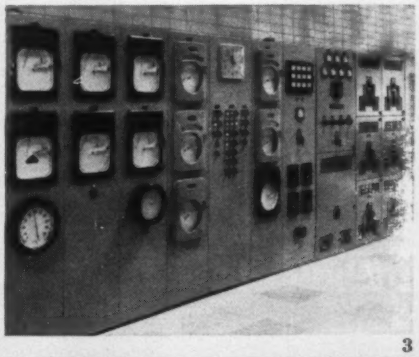

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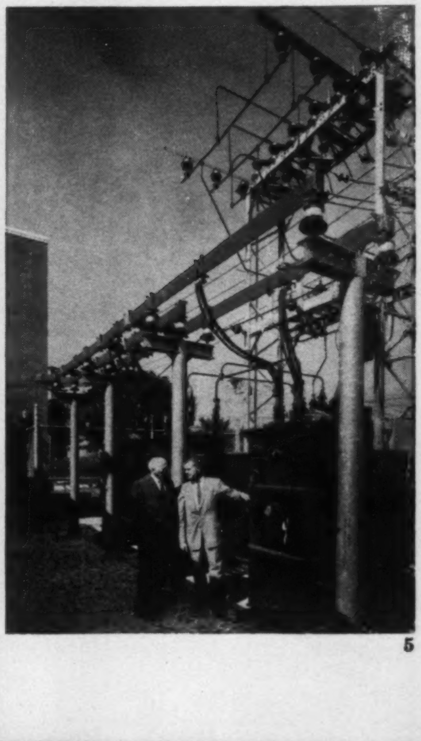

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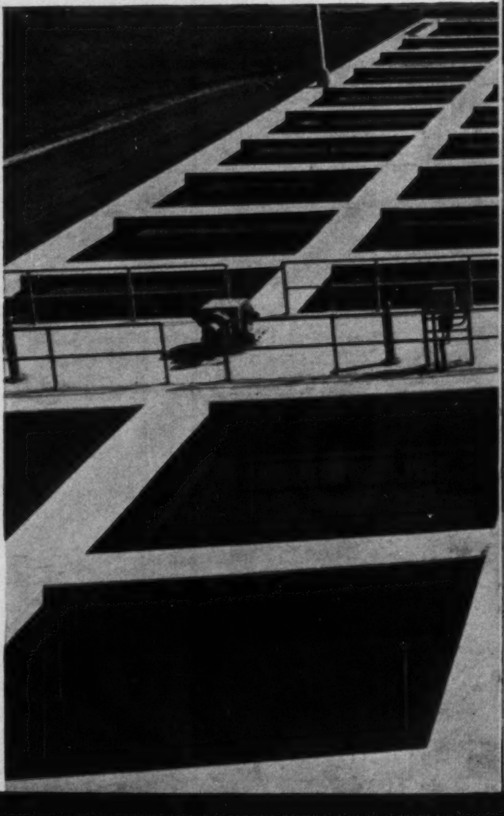


Filtration Plant Powers-Up for Next 30 Years
(cont'd)

OWNER: *City of Binghamton*
GENERAL CONTRACTOR: *Smith-Howard and Sprague, Binghamton, N. Y.*
ELECTRICAL CONTRACTOR: *Lord Electric Co., Inc., New York, N. Y.*
CONSULTING ENGINEERS: *Leonard S. Wegman Co., New York, N. Y.*
Alexander Potter Associates, New York, N. Y.
ELECTRICAL DISTRIBUTOR: *Westinghouse Electric Supply Co., Long Island City, N. Y.*

6. Compact, expandable motor control . . . These Westinghouse units, together with the lighting panelboard (door open), centralize control for all auxiliary equipment in the chemical building. Motor starters serve mixers, drives, pumps. Thirty-kva transformer, feeding panelboard, completes assembly. Blank sections, at left, permit future additions.

7. Control for added capacity . . . Starters for high lift pumps include two new Westinghouse reduced voltage autotransformer types to complement several starters moved from original plant. Control accessories were added to modernize these—thus providing an economical conversion to the new control scheme. Westinghouse starters were used to control new 600-hp high lift pump and 125-hp wash water pump.

8. Close cooperation among the consulting engineer, electrical contractor and Westinghouse makes it possible for Binghamton to provide for the future today. Seen at left: A. J. Juris and E. J. Young of Lord Electric Co.; E. Piller, Westinghouse Electric Supply Co.; P. J. Gallagher, Westinghouse; and J. J. Fenley of Lord.

9. Color and light welcome visitors ... Lobby area is handsome with terrazzo flooring, marble paneling, mosaic tile stair wells. Westinghouse Mainliner fluorescent luminaries blend with building's structural elements. Average illumination intensity is 90 foot-candles.

10. Room for more . . . C. E. Ahern, filter operator, seen at Westinghouse NLAB lighting panelboard which contains normal and emergency breaker sections with spares for future circuits. Flush trim and special brass hinges harmonize with architectural detail of plant.

11. Take water, add chemicals, mix well . . . G. E. Rickard and R. D. Batley inspect the slow mix tanks. Settling tanks in background provide 3½-hour detention. Entire area is illuminated at night to promote safe operation and permit 24-hour observation of flocculation process.

J-94152-4

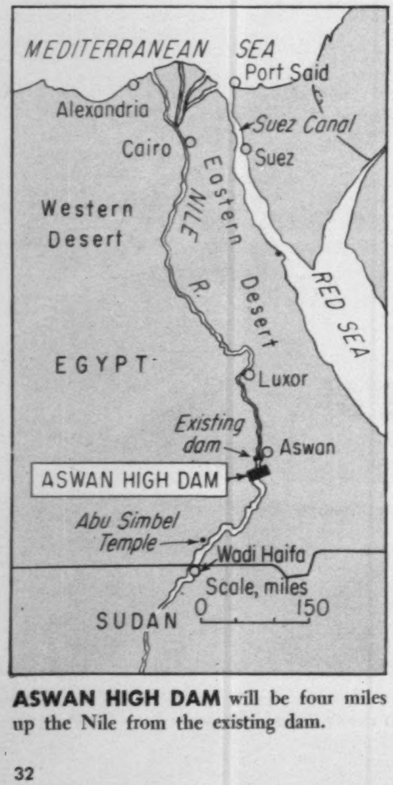
Westinghouse

Soviet machines go to work on diversion channel for the Nile as . . .

Construction Begins on Aswan

By Waldo G. Bowman

Nearly a year after President Nasser of Egypt ceremoniously pushed a switch that detonated the first charge of dynamite at the site of Aswan High Dam, there still isn't much to see. But to seize on this fact as an indication that the Russians, who are planning and supervising the construction, have fallen down on the job would be very unwise. There are other reasons for the present appearance of the Aswan job.



ASWAN HIGH DAM will be four miles up the Nile from the existing dam.

In the first place, President Nasser, like politicians everywhere, probably could no longer resist the urge to get publicity and make propaganda out of a ground-breaking ceremony, regardless of the actual readiness of the job to go ahead. There is also the possibility that the ceremony was a calculated move on Mr. Nasser's part to needle the Russians to more speed.

But the probable reason for the slow start, if it was actually slower than necessary, is that the Russians planned it that way. After all, their agreement and initial $70-million loan covered only the first stage of the dam—river diversion and cofferdams. They may have thought it desirable to button up the whole package with a second stage pact before going all out on the first.

In any event, since this second stage agreement was signed last August, involving an additional loan of $156 million, construction activity at the site has progressively increased. Haul roads and a railroad spur are under construction, three-story apartment houses for the staff and a water supply reservoir are being built; electric power has been brought to the site from the new power plant at old Aswan Dam, four miles downstream; and a 20,000-kw substation for the job is partly in service.

Most expressive of progress, however, is the fact that excavation of the 385,000-cfs diversion channel, nearly 200 ft wide and as much as 250 ft deep, has begun. One 5-cu-yd electric shovel from the U.S.S.R. was loading a half-dozen 25-ton-capacity Russian-made trucks with the blasted rock in December, and seven other shovels of the same size and type were in various states of assembly on the site. The Russians say this channel excavation will be going at full speed by June.

*Article VI in a series of reports on construction activity in Asia and the Middle East by **ENR Editor Waldo G. Bowman.***

If there is not much to see yet at Aswan High Dam, it is nevertheless possible to sense that more will be visible in progressively fast order.

- **Facts about its features**—There are several other facts about the project, which the Egyptians call Sadd-el-Aali, i.e. "the high dam," that should be placed in perspective. There can be no question but that it has acquired more pre-construction world fame than any dam in history, but it is not true, as many news stories have implied, that it will set a world's record as to size. As to height, its 111 meters (365 ft) is exceeded by a half-dozen other rockfills. And on the more significant basis of volume, three dams in the U. S.—all on the Missouri River—are substantially larger than its projected 53 million cu yd. They are Oahe (81 million cu yd); Garrison (67 million cu yd); and Fort Peck (126 million cu yd).

These are all earth dams and not earth and rockfills, as Aswan Dam will be. Yet even on such restricted grounds of comparison it has its peers: Both of the storage dams planned for the Indus Basin project in Pakistan (ENR Feb. 9, p. 30) will be larger than Sadd-el-Aali, and one of them, Tarbela, may reach the world record volume of 130 million cu yd.

In one respect, however, the Aswan High Dam will be far out in front of any competitor: It will impound a reservoir of 100 million ac ft, which is more than three times the size of Lake Mead behind Hoover Dam.

Dam—Russian Style

The really notable features of the new Aswan dam are these: A sizeable portion of its volume will be made up of dune sand, hitherto never used as fill in a large hydraulic structure; in the first stage this sand must be deposited in water 35 meters deep; and the foundation upon which the dam must rest is silt, sand and gravel down to a depth of about 200 meters (650 ft).

• Russians change design – Another point upon which new perspective is available relates to the changes made by the Russians in the original design. It will be recalled that Egypt engaged German engineers to make a preliminary design, that detailed recommendations for a final design were made by an international consulting board consisting of I. C. Steele, Lorenz G. Straub and Karl Terzaghi of the U.S., Andre Coyne of France and Max Pruess of Germany, and that this design was developed by Sir Alexander Gibb and Partners of London (ENR Feb. 9, 1956, p. 44).

The design, as then accepted, consisted of a clay core with a rockfill shell, resting on a foundation of dune sand, which was to be deposited to a thickness of about 25 meters on the river bottom. Both this deposited dune sand and the natural silt beneath it were to be compacted by vibration.

To insure against leakage under the dam, a grouted vertical cutoff was planned to extend from the river bottom for some 200 meters down to and through compact sand and clay to rock and, as a second line of defense, there was to be a long upstream blanket of dune sand and silt. Both the upstream and downstream cofferdams required for construction would be integral parts of the final dam.

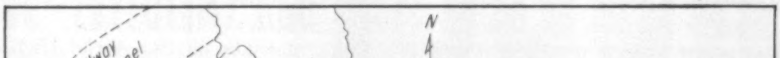
The original design also contemplated the use of seven, unlined 16-meter-dia tunnels 2,100 meters (6,900 ft) long, on the right bank for river diversion, and four 14-meter-dia tunnels 1,500 meters (4,900 ft) long, on the left bank to serve a power plant.

The dam recommended by the Russians and accepted by Egypt is shown in the accompanying cross-section and plan. The main cross-section is claimed to be virtually the same as the original, but an important change is the elimination of the upstream blanket. The whole dam is also moved about a half-mile upstream.

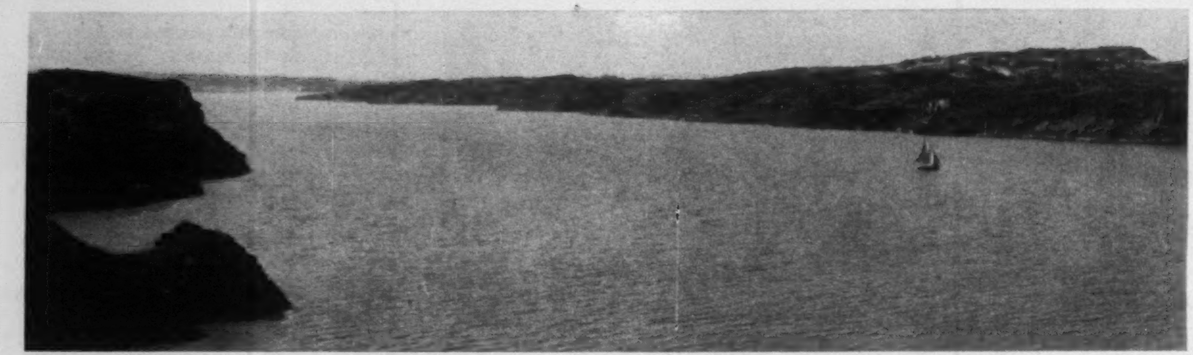
Dr. Hassan Zaky, the able Egyptian engineer who is president of the Sadd-el-Aali Executive Organization, says he believes the original designers would have agreed to these changes too, since they result from new information not available at the time. The new information is that it is possible to make an effective grout curtain in deep alluvial material. This is said to have been proved by the French on their new Serre Poncon Dam on the Durance River, where a clay and cement mixture was injected to a depth of 330 ft to render the alluvian watertight.

The reasoning on the Nile dam was that if there were no question as to the effectiveness of the vertical grouted cutoff, the upstream blanket as a second line of defense against leakage was unnecessary. Once this decision was taken, it is Dr. Zaky's view that other important changes in the facilities originally planned for the project were dictated by "logical engineering considerations." These changes were to substitute an open cut for most of the length of the tunnels that were to be used for diversion, and to move the power plant from the left bank to the right bank where it could be incorporated into the diversion facility.

(*Turn the page*)



RUSSIAN-REVISED DESIGN moves dam upstream, shortens right bank tunnels and puts power plant on right bank, which eliminates previously planned left bank tunnels.



NEW ASWAN SITE is in reservoir of present Aswan dam. It will extend upstream from just beyond the sailboat in the picture.

• **How the changes came about**—Dr. Zaky explains it this way. Elimination of the long upstream blanket considerably shortened the length of the dam up and down the river. This pointed the way to a reduction in length of the diversion tunnels. And since the original location of the upstream portals—in an existing side-valley stream—was ideal, it was the downstream portals that had to be shifted in any tunnel shortening process.

It then became logical to relocate the dam farther upstream opposite the shortened tunnels. But on their new alignment the tunnels would be reasonably near the ground surface. It was therefore decided to convert them to an open cut, except in areas adjacent to the dam where the cover was a maximum. Here tunnels were necessary, and it was reasoned that they could serve a double purpose if the power plant were placed at their outlets.

This arrangement eliminated the four power tunnels on the left bank. It also permitted concentration of the temporary diversion and permanent outlet and power facilities together on the right bank, a grouping that offered construction economies. The new plan also uses only six instead of seven tunnels.

In Dr. Zaky's opinion, greater operating efficiency will result from the combination open cut-tunnel arrangement, since the loss of head at maximum discharge will be much less than under the original all-tunnel scheme. For one thing there will be fewer tunnels, and they and the open channels will be lined. For another a different gate arrangement is planned, including the use of sector instead of vertical lift gates. In the original long tunnel scheme, bulkhead gates were to have been used at the inlets, vertical lift gates at about the mid-point and stop logs at the outlets. For the shorter tunnels, bulkhead gates and stop logs will be used as before while sector gates will be installed at the downstream ends of the tunnels.

When the power plant is built, in the final stage of the work, it will be located just downstream of the sector gates—between them and the outlet stop logs. At this same time, too, the upstream ends of the tunnels will be plugged and the bulkhead gates there raised to the new power intakes at a higher elevation—El 123 meters instead of El 85.

In connection with the dam design, Dr. Zaky also points out that extensive field tests, involving vibration and penetrometer tests of the river bottom, showed it to be firm enough in its natural state to warrant elimination of the compaction requirement. It is held that the compaction afforded by the 35 meters of water that has pressed down on this bottom in the half century that it has been the bed of the reservoir behind the old Aswan Dam cannot be greatly increased by vibration treatment. It is still planned, however, to use vibration to compact the dune sand that will be deposited in the foundations of the main dam.

Vital statistics on the Aswan High Dam, as of November 1960, are given in the table on page 38, while the accompanying drawings are based on plans marked "USSR Ministry of Power Stations Construction. Hydroproject. Sadd-el-Aali. Moscow, 1960." Nevertheless, changes are still to be expected, as witness the very recent statement by the Soviet news agency that the capacity of the power station would be increased from 2.1 million kw to 2.4 million by increasing the number of turbines from 12 to 14.

• **The job today**—In the meantime, however, both work and planning are going ahead. In the downstream diversion channel or tailrace, Soviet construction equipment manned by Soviet-trained Egyptians is removing the blasted black granite rock, which is being stockpiled for use in the dam. Large charges of dynamite placed in horizontal tunnels are being used to lift and fragment the rock. About one pound of dynamite is required for each cubic yard of rock, and the largest blast made so far is said to have satisfactorily broken up 27,000 cu yd.

Blasting is far enough ahead in this cut so that at least two more of the 5-yd electric shovels can be kept busy as soon as they are assembled and crews are trained. Drilling and blasting are also getting under way in the headrace channel, but sustained excavation here still awaits the assembly of the big electric shovels.

Since the upper end of the headrace canal will be in an existing side-valley stream, a cofferdam will have to be built here to protect the excavation work. At the lower end of the tailrace canal, however, a rock plug has been left in, and excavation is moving away from it upstream.

It is stated that 3,000 Egyptians are at work on all phases of the project, directed by about 65 Soviet and 200 Egyptian engineers and technicians. Soviet personnel will increase, however, when tunneling work starts. The plan is to use an Egyptian labor force on the canals and the cofferdams, but for the Soviets to drive the tunnels themselves. The first operation scheduled is a transport tunnel to provide access to the tunneling area. The tunneling work can then go forward simultaneously and without interference with the open cut excavations up and downstream.

• **Future construction planning**—It will require three more years to complete the tunneling and the open cut work for the diversion channel. During this time the construction of the cofferdams must also be undertaken. The present schedule calls for this work to begin toward the end of next year. It will be under-water work until the summer of 1964. Then, with the top of the dam above reservoir level, work will proceed at a faster pace for a completion date six months later. After that, the reservoir behind the upstream cofferdam can be filled and put to use while the construction of the main dam is carried out.

This is an important aspect of the project, for this cofferdam reservoir will add 6.4 million ac ft to the 4 million ac ft available in the existing Aswan

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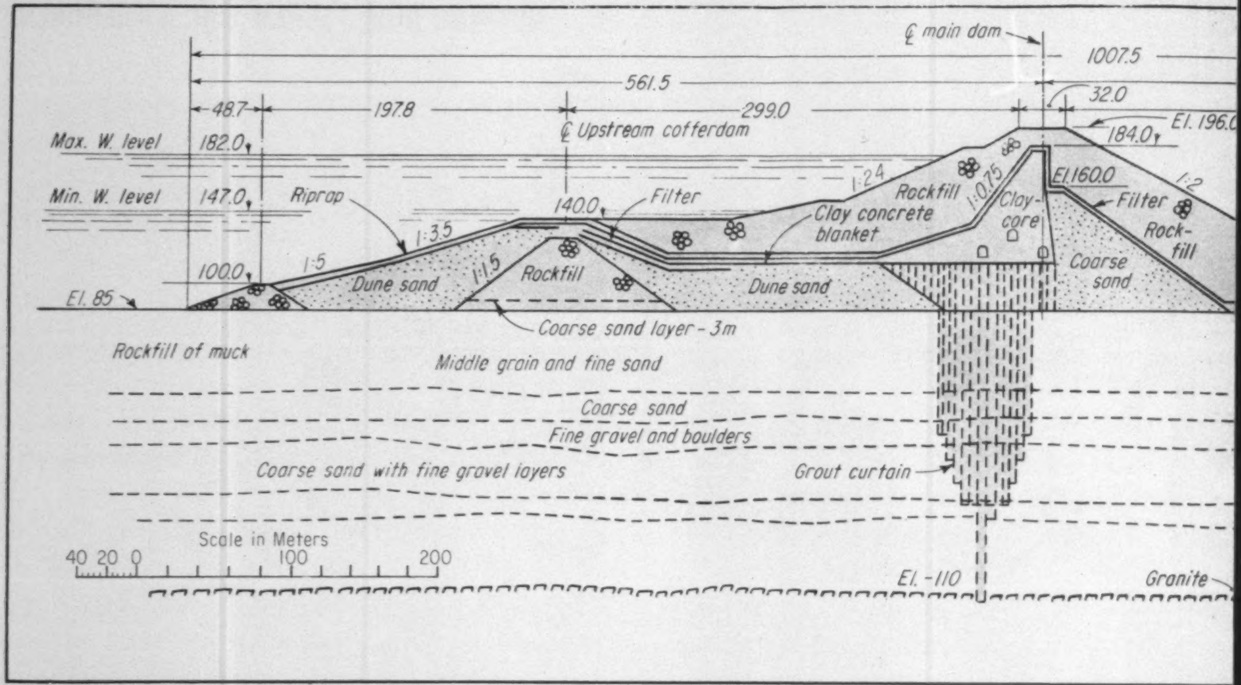


℄ main dam
1007.5
561.5
32.0
48.7
197.8
299.0
El. 196.0
184.0
Max. W. level
182.0
℄ Upstream cofferdam
1:2.4
Min. W. level
147.0
Riprap
140.0
Filter
Rockfill
1:0.75
Clay-core
El.160.0
Filter
1:2
Clay concrete blanket
Rock-fill
1:3.5
Coarse sand
100.0
1:5
Dune sand
1:1.5
Rockfill
Dune sand
El. 85
Coarse sand layer - 3m
Rockfill of muck
Middle grain and fine sand
Coarse sand
Fine gravel and boulders
Coarse sand with fine gravel layers
Grout curtain
Scale in Meters
40 20 0 100 200
El. -110
Granite

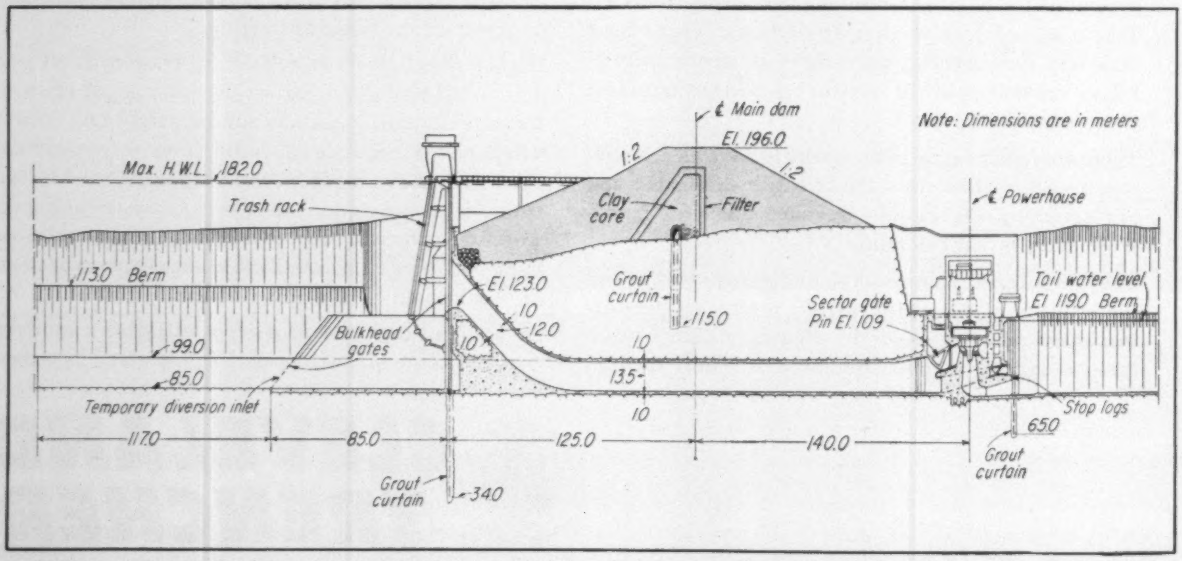
CROSS-SECTION OF DAM shows how cofferdams up and downstream will be incorporated in final structure. A considerable part of

Dam reservoir. The plan is to use this additional storage to provide perennial irrigation to 1 million acres of land now getting only seasonal water and to irrigate another 1½ million acres of new land. No more acreage can be served, even when the main high dam is completed, but the land can then be assured of water in both dry and wet years, since the larger reservoir will permit over-year storage instead of just annual storage.

This upstream cofferdam promises to be a difficult piece of construction, and its planning is now actively under way. Planning is based on significant departures that the Russians have made from the original design. One of these departures is to abandon the use of an 8-meter-thick layer of graded sand in the form of an inverted filter that was to serve as the foundation of the rockfill. The Russians claim that such a filter would not work, and in its stead propose to use a 3-meter layer of coarse sand topped by small stone merging into the rockfill above.

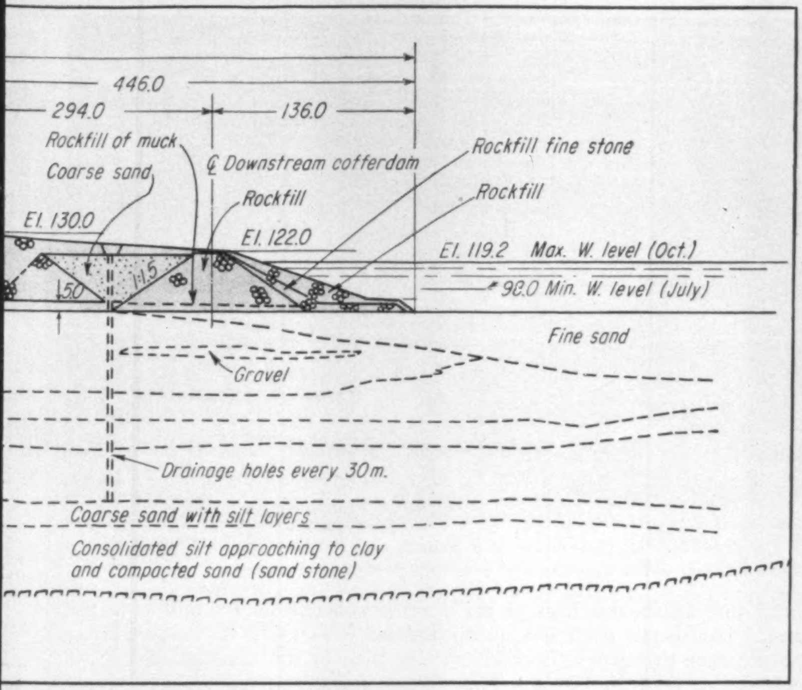
The rockfill will be placed from bottom-dump barges and progressively sluiced with sand to fill the voids. Pontoon-supported pipes fed from moored sand barges will be used for this sluicing work. Other sand will be dumped upstream so that it, too, can wash down into the rockfill voids.

The trapezoidal-shaped rockfill of this upstream cofferdam will have a base width, up and down stream, of about 150 meters and a top width of about 25 meters. It will be 45 meters high and extend for 500 meters across the river. The cofferdam will be completed by a thick shell of dune sand extending for 100 meters upstream to a rockfill toe.



℄ Main dam
Note: Dimensions are in meters
El. 196.0
1:2
1:2
Max. H.W.L. 182.0
Trash rack
Clay core
Filter
℄ Powerhouse
113.0 Berm
El. 123.0
Grout curtain
115.0
Sector gate Pin El. 109
Tail water level El. 119.0 Berm
10
12.0
Bulkhead gates
10
10
99.0
85.0
13.5
Temporary diversion inlet
10
Stop logs
65.0
117.0
85.0
125.0
140.0
Grout curtain
Grout curtain
34.0

TUNNELS IN FINAL STAGE at Sadd-el-Aali will have their inlets at a higher level than during the river diversion period, and will feed a power plant to be built at their outlets, which are also equipped for controlled irrigation releases.


446.0
294.0
136.0
Rockfill of muck
Coarse sand
℄ Downstream cofferdam
Rockfill fine stone
Rockfill
Rockfill
El. 130.0
El. 122.0
El. 119.2 Max. W. level (Oct.)
98.0 Min. W. level (July)
1:1.5
50
Fine sand
Gravel
Drainage holes every 30m.
Coarse sand with silt layers
Consolidated silt approaching to clay and compacted sand (sand stone)

both cofferdams will have to be built under water.

The downstream side of this upstream cofferdam rockfill will also be covered by dune sand, which will be a part of the 25-meter-thick compacted layer that will support the rockfill of the main dam. The Russians had proposed that this deep layer of compacted sand be changed to rockfill sluiced with sand (ENR July 9, 1959, p. 23), but the latest information is that this change will not be made. Egyptian engineers are said to feel that it is too risky to assume that the sand sluicing will sufficiently fill the voids.

The downstream cofferdam, 37 meters high, will be similar to, but smaller than, the upstream cofferdam. Differing from most downstream cofferdams in that its downstream face will almost always be under water (since it will be in the reservoir of the old Aswan Dam), this face is topped off with a filter protected by riprap.

In so far as forward planning for the main dam is concerned, this seems to relate principally to the critical operation of placing the vertical grout curtain. The injections must cover an area about 60 meters wide up and down stream, and must penetrate a compact formation 150 meters below the clay core of the dam. A thinner curtain of grout will also be extended from this level to rock at a depth of 200 meters.

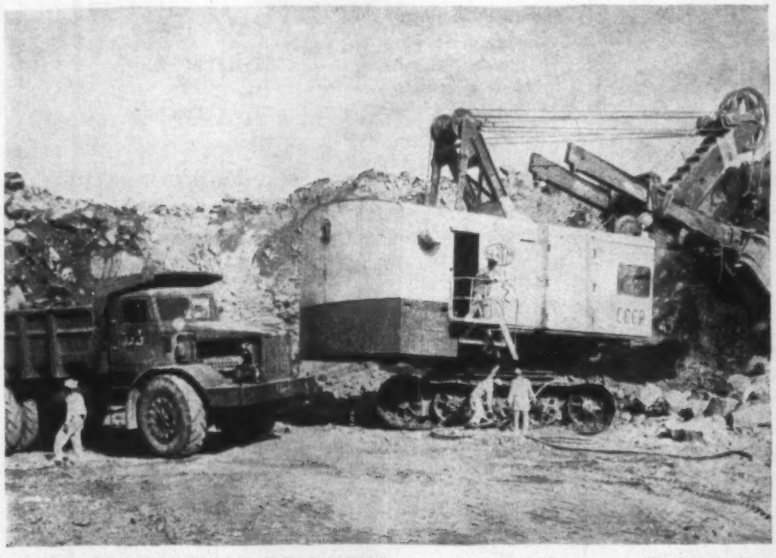
Present thinking is that for grouting the fine sand formations a chemical mixed with bentonite will be used. In the coarser sands the grout will consist of 80% Aswan clay and 20% cement.

• **A 10-year project**—For nearly a decade more, if Aswan meets its scheduled completion date in 1968, it will be a project whose progress engineers, construction men and many others throughout the world will follow with interest. It has now, and will continue to have, aspects subject to differing opinions.

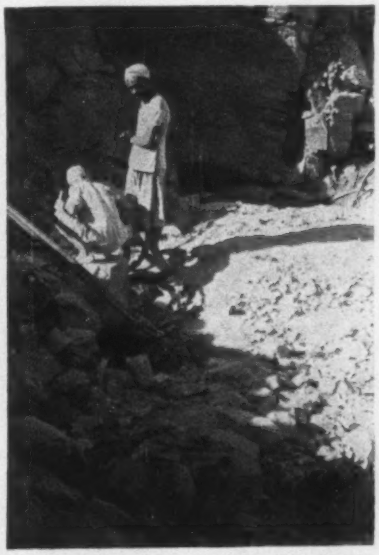
There are, for example, Egyptians who claim that it will be too big and too costly ($400 million including the power plant), and that its evaporation losses will be excessive. They are answered by others who would like to see it built higher, who say that the same costly grout curtain would be required even for a lower dam, and point out that the water lost in evaporation will at least not add to the flood discharges to be handled.

The supporters also emphasize that a high "over-year" storage dam at this site offers the country the only possibility of increasing its irrigated area, of practicing perennial irrigation and of providing a stable power supply for industrial development. In this latter connection they have a telling argument in pointing out that the high dam will assure that the new 350,000 kw hydro plant at the old Aswan Dam downstream can be assured of a constant and maximum head all year.

Other points of criticism are that too much storage capacity has to be reserved for silt accumulation and that



SOVIET CONSTRUCTION EQUIPMENT is working in tailrace cut. Eight of these 5-cu yd electrical shovels will be on the job by midsummer.



BIG BLASTS set off in tunnels (background) fracture rock for tailrace excavation.

seepage losses under the dam will be excessive. Defenders answer both these criticisms together by claiming that the silt will afford a natural upstream blanket to reduce seepage losses. It cannot be denied that the silt supply downstream, which farmers have counted on to maintain the fertility of their land, will be reduced. Yet an answer is ready here also. It is chemical fertilizer, and the Egyptian government completed the first plant for its manufacture last year. It is near the present Aswan Dam, and is using power from the dam's new hydro plant.

None of these points can be definitely settled until Aswan Dam is completed and in operation. In the meantime there are many aspects of both design and construction that will keep technical discussion boiling as they emerge during the next decade. One thing seems certain, however: The U.S.S.R. will bend its every effort to making the dam a safe and efficiently built structure. It occupies too big and prominent a show window to the world for the Russians to do otherwise.

And there is one final, even though auxiliary, aspect of the project that seems likely to keep it in the limelight. That is the problem of moving or protecting some of the twenty-four monuments of ancient Egypt that will otherwise be flooded by Aswan's reservoir.

The most famous of these is the temple of Abu Simbel, 150 miles upstream from the dams. The facade of this 3,200-year-old temple, 110 ft wide and 110 ft high, is dominated by four 65-ft-high seated figures of the Pharoah, Rameses II, which are carved on the rock cliff that will be one bank of the reservoir. The temple itself is a great excavated cavern that extends back into the cliff for more than 200 ft. The United Nation's Educational, Scientific and Cultural Organization (UNESCO) has undertaken a world-wide campaign to raise funds to save the temples, and has engaged Coyne & Bellier, Paris consulting engineers, to make a preliminary study of possibilities.

ABU SIMBEL TEMPLE, monument to a pharoah of 3,200 years ago, will be submerged by Aswan reservoir unless extensive and expensive protective measures are taken.

The design suggested is an earth and rockfill dike about 230 ft high curving around the water side of the temple site and far enough removed so that the facade can be viewed from a distance. Rough estimates indicate the dam and neecssary cliff grouting would cost anywhere from $60 million to $80 million.

Spurred by this challenge, an Italian group, Italconsult, has come up with a spectacular counter suggestion, which, it says, would be $20 million cheaper—cut the temple loose from the surrounding rock and raise it 200 ft. Since the weight to be lifted would be on the order of 400,000 tons, this would be an extraordinary construction operation. But then so would be construction of a 230-ft-high dam that would have to be some two miles long.

In any event, for one reason or another, Sadd-el-Aali and its problems are going to be with us for a good many years to come.

Technical Data on Aswan Project

Dam	
Length at crest	3500 m. (11,500 ft)
Height above bed level	111 m. (365 ft)
Width at crest	32 m. (105 ft)
Width at base	1000 m. (3,300 ft)
Volume	40 million cu m. (53 million cu yd)

Reservoir	
Total storage	130 billion cu m. (104 million ac ft)
Operational storage	70 billion cu m. (56 million ac ft)
Flood storage	30 billion cu m. (24 million ac ft)
Dead storage	30 billion cu m. (24 million ac ft)
Annual evaporation and seepage losses	10 billion cu m. (8 million ac ft)
Length of reservoir	500 kilometers (300 miles)
Average width of reservoir	8 kilometers (5 miles)
Surface area	4000 sq kilometers (1,500 sq miles)

Diversion Channel	
Length of headrace dredged channel	500 m. (1,600 ft)
Length of headrace rock cut	550 m. (1,800 ft)
Length of spillway structure (tunnel) and power house	285 m. (950 ft)
Length of tailrace rock cut	300 m. (990 ft)
Length of tailrace dredged channel	200 m. (660 ft)
Total length of diversion channel	1835 m. (6,000 ft)
Bed width	60 m. (200 ft)
Max. discharge	11,000 cu m/sec. (385,000 cfs)
Number of tunnels	6
Diameter of tunnels	14 m. (46 ft)

Power Station	
Number of units	12
Type of turbines	Francis
Effective head	40-60 m. (130-200 ft)
Capacity of each unit	175,000 kw
Total installed capacity	2,100,000 kw

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November 30th marked the end of test traffic in the $27,000,000 pavement test sponsored by the American Association of State Highway Officials (AASHO).

More than 1,100,000 load applications and millions of scientific readings were recorded before the last truck rolled off the track near Ottawa, Illinois. The fleet of trucks—from farm-size pickups to 54-ton semi-trailers—piled up an impressive 17 million miles of travel. On the test loops, 836 separate sections repeat nearly 200 different pavement combinations to provide a wide range of measurements.

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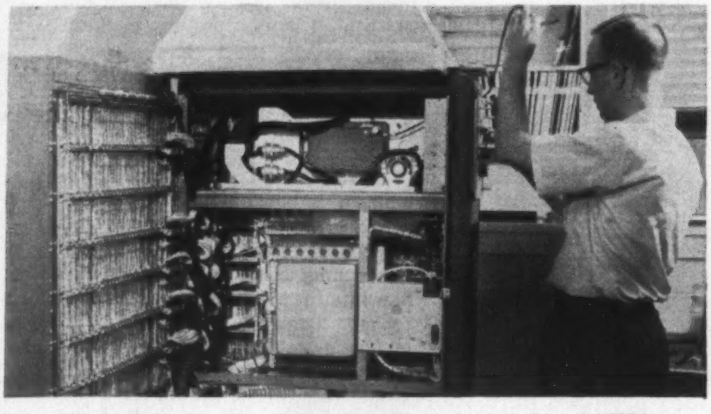

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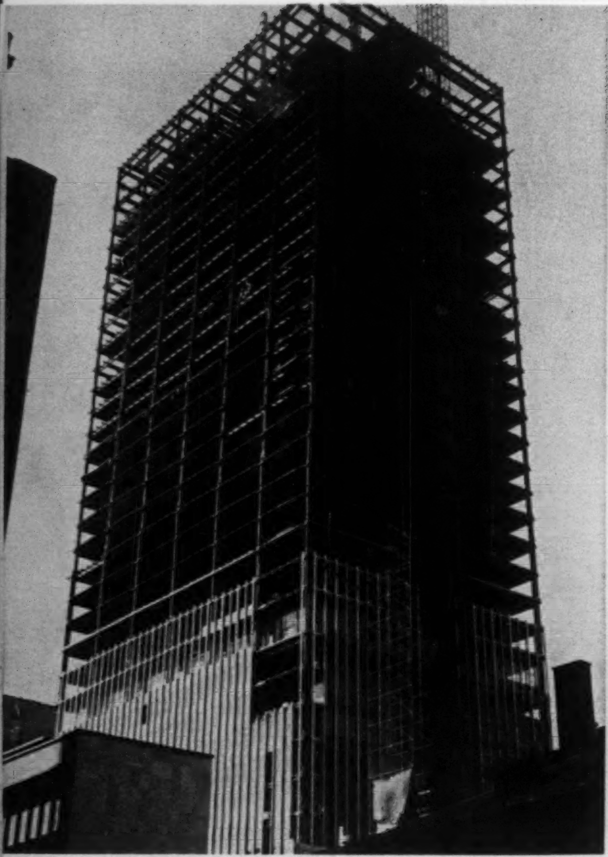
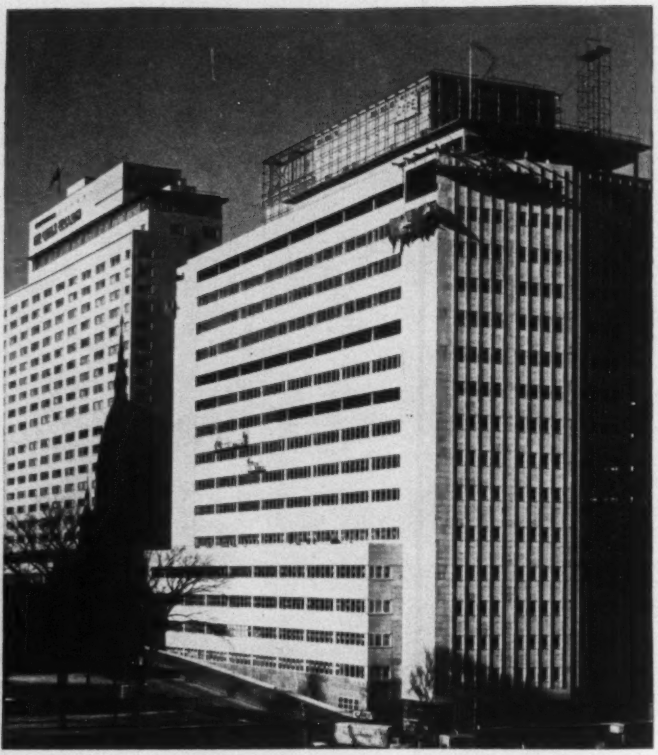


CIL House: welded in record cold.



Canadian National: planned to bypass winter.

Montreal: A Winter Construction

Building contractors in Montreal are fighting the coldest weather in 13 years to keep the city's largest office building boom since the late 20's going through the winter months. They are applying a wide variety of ingenious and sometimes expensive techniques to stay on schedule and maintain employment.

The extent of the construction effort during the winter months reflects the owners' willingness to trade money for time—or, at least, construction money for earlier rent collections. The contractors themselves seem nonchalant about the mechanics of handling cold weather.

Winter in Montreal—and through most of Quebec—has been different this year. Normally there is over 70 in. of snow down by this time, construction sites are buried under drifts and streets are lined with man-high piles of plowed snow. This year, no snow has fallen since early January. Instead, there's been a two-month stretch of zero and subzero temperatures—sometimes cold enough to turn heated concrete to granular slush between truck and form, seize up mechanical equipment left idle for a few minutes. It makes steel welding a process that needs the care and temperature control of slow-bake cakemaking.

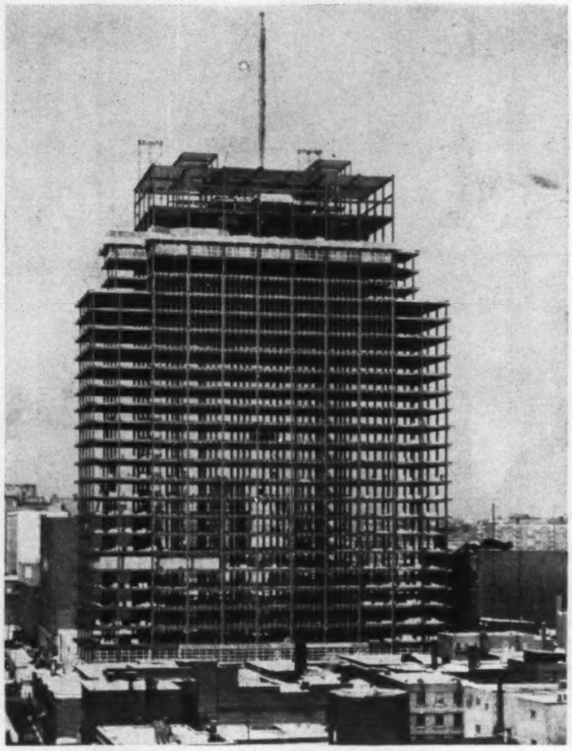
Despite the cold, there's nearly $200-million worth of building work under way within a six-block-square section of downtown Montreal. Five projects that make up the bulk of this total present a cross-section of construction activity, from foundation excavation through interior finishing.

• **A cool million**—Over $1 million will have been spent on winter protection at the Place Ville Marie development by the time it's finished. This $80-million project will sprawl over nearly seven acres of Canadian National Railroad yards in the center of the city near Dominion Square (ENR, June 18, 1959, p. 144). There will be three plaza levels over the entire site at and below street level and two or three low office buildings. A 42-story cruciform-shaped office tower will dominate the project. Steel for the tower has reached the 16th floor, while 60 ft below street level drill rigs and power shovels are still cutting through limestone for foundations of the surrounding plaza levels.

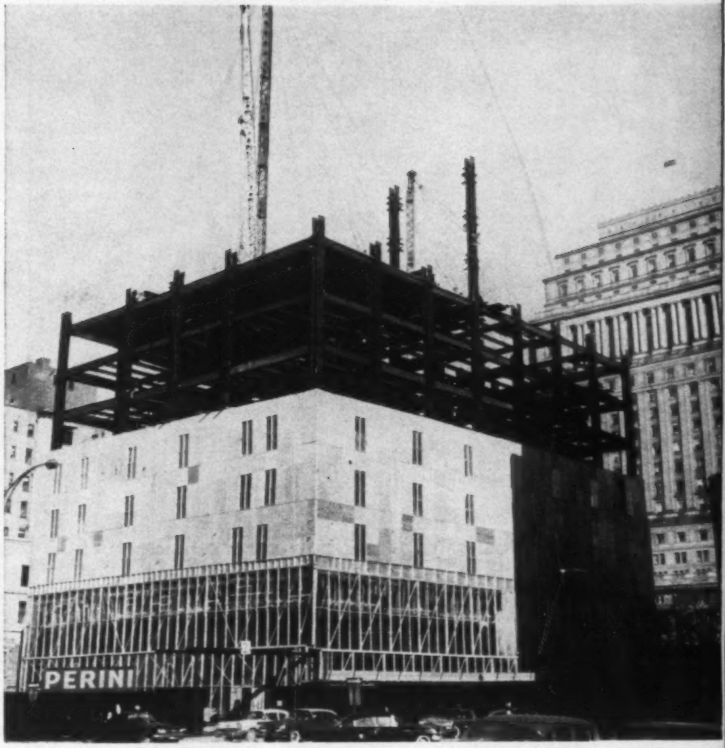
The Foundation Co. of Canada, Ltd., is general contractor. A. P. V. Bennett, project engineer, says the million-dollar figure for winter protection covers the three winter seasons—59, 60 and 61—that any major work will be "open."

The Foundation Co. has a cost-plus-fixed-fee contract with Webb & Knapp (Canada), Ltd., the developer. An August date has been set for steel completion on the tower and occupancy has been scheduled for 1962. To meet this schedule, the contractor is speeding the work without moving any trades' work into warmer weather. Mechanical trades operate in heated shops below street level, concrete placing in the tower goes on behind double walled plastic enclosures, while steel erection goes on in the open on top.

• **Steam is bought**—Rather than erect an expensive plant for temporary heat, the contractor is drawing up to a million pounds of steam a week from the Sun Life Insurance building next to the project. Permanent heat will be tied in later from Canadian National Railroad's main plant, which is located half a mile away, as the tower's curtain wall is erected.



Hydro—Quebec: built around the cold weather.



Canadian Bank of Commerce: movable walls.

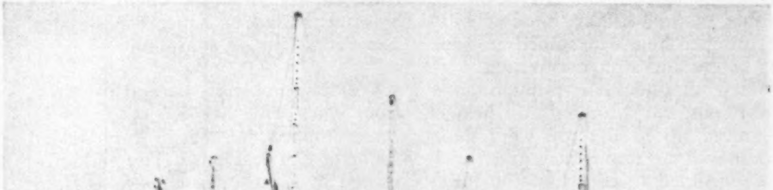
Showcase

Steam now enters the project at 125 psi. It is reduced to 15 psi for use throughout the job. The three floors below street level are heated with steam fed to unit heaters in shops and offices. All these areas are enclosed in wood-framed panels of 6-mil polyethylene.

Above street level, only the areas that really need higher temperatures are heated. The Foundation Co. has erected six levels of double, 20-mil-thick plastic tarpaulins that will be reused at successive levels as concreting and mechanical work progress.

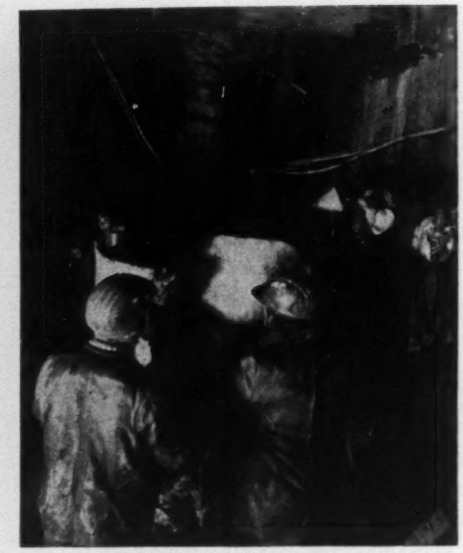
Each floor's enclosure was set out from the building line on 1¼-in.-dia bolts screwed to nuts and sleeves welded on the spandrel tops at about 5 ft c-c. Retainer nuts hold 3x8 timbers on the bolts. Tarps are fastened to the timbers on hooks at the top and on short studs at the bottom. In addition, a 1 x 2-in. batten goes on to tie the tarps down.

As long as the tarps are kept tight, they will take winds up to 30 psf. For high gusts, carpenter add 2x4 studs at 10 ft c-c from floor to floor to reduce the free-panel area of the plastic sections. With tight fit in mind, The Foundation Co. ordered the tarps cut to size from Dominion Poly Products, Toronto. Eyelets or the studs and



Place Ville Marie: a cool million spent for heat.

Double plastic tarps change zero outside to 50F inside.



Electric lines heat standpipes.

hooks at top and bottom match the 11-ft 5-in. height from floor to floor.

• Dual heating system—Each cross-shaped floor is nearly an acre in area. To keep these spaces heated on the active working levels, the contractor set up a dual heat system. There are two unit heaters tied to the steam lines in each 7,500-sq-ft wing. In addition, portable, oil-fired heaters rated at 450,000 btu per hour, are added in each wing before and after concreting.

When all trades are through on a typical floor, the steam-fed unit heaters are moved up to the top work floor. Curtain-wall erection is now under way. It is scheduled to climb up the tower at the same pace as steel erection and concrete finishing.

When temperatures are near zero, it takes at least 24 hours to build up heat on a floor for concrete work. The contractor maintains the floor below a pour at a minimum of 40F and the working level at about 50F. The temperature is maintained in each story for 72 hours after a pour. Since the concrete (on cellular steel deck) gets a monolithic finish, the builder cures the floor with water-soaked burlap for seven days.

That's one of the few places in the project where they use water during the cold months. Usual rule is to work with compressed air alone for deck cleaning before concrete work. Steam is a second choice. Water—where it's needed—is a problem.

Because of this, maintaining fire lines is one of the biggest headaches on the job. Standpipe risers are heated with both steam and electricity. As soon as a riser is installed on a new floor, workmen run a low-pressure steam tube up the side of the pipe and wrap electric heater lines around the branches leading to hose cabinets. Insulation blankets go on last. Antifreeze is used in the small portable water extinguishers on floors above the standpipe level.

Architects for the project are I. M. Pei & Associates, New York City and Affleck, Desbarats, Dimakopoulos, Lebensold, Michaud & Sise, Montreal. Brett-Ouellette-Blauer Associates, Montreal, are the structural engineers with Severud, Elstad & Krueger Associates, New York City, as consultants.

• Welding problems—Diagonally across from Place Ville Marie, steel crews recently topped out the 32-story welded frame of C. I. L. House. The building—owned by Dorchester University Holdings, Ltd.—was 80% rented at the end of January, and the owners want to get tenants into the 600,000 sq ft of office space in the structure as soon as possible.

Stopped at the 16th floor by a strike in their fabricating shop last summer, Dominion Bridge Co., Montreal, began erection for the second time in November. Erecting two floors each week, Dominion finished the 11,500-ton job at the beginning of this month after working through some of the coldest days on record in Montreal.

Keeping heat on connections after welding, as well as before and during the work, turned out to be one of the most important steps in the cold-weather steel erection. As a matter of course, welding crews heated all joint areas with propane torches in temperatures below 32F. But welding only when the surrounding metal was "warm to the hand" wasn't enough. With temperature near zero, engineers found the crews had to control joint cooling carefully with propane torches to eliminate all danger of weld cracking.

Most of the frame was A7 or Canadian G 40.4 steel. Wind bracing, for sections thicker than 1½ in. was A373 steel. Heavy column plates were formed with A 284, C and D material.

As more new G40.8 grade steel goes onto the Canadian market (ENR Feb. 2, p. 26), the heat and deheat problems of deep cold welding should be reduced.

• "Nothing beats steam"—The CIL contractors depend on temporary steam lines for the bulk of heat requirements during construction. "If you can provide it economically, nothing beats steam for temporary winter heat," comments David Mitchell, project superintendent for Anglin-Norcross-Quebec Ltd., the general contractor.

For retaining heat on the working floors, Mr. Mitchell has shifted 6-mil-thick plastic panels framed on 2 x 4's from area to area. He calculates costs from 6½ to 7 cents per sq ft—for labor and material—to erect and remove the enclosures. For "high" temperatures, up to 40F the contractor shifts a dozen portable oil heaters about the job.

The contractor has tried insulating blankets on concrete work. On each floor there's a reinforced concrete strip just inside the spandrel that acts as a stiffener for wind-load transmission. The contractor laid plastic-sheathed blankets containing 1½ in. of fiber insulation on these strips and found proper curing temperatures could be maintained without additional heat or protection below the forms at an outside temperature as low as 10F.

Peter Sheret, general superintendent, for ANQ, points out that while his experience with the new quilted and bulk blankets has been good, he prefers complete enclosures whenever possible on

Plank goes down in winter, finish comes later.

Steam heats men, materials and machinery.

building construction so that several trades can work simultaneously. Job progress more than pays for the enclosure and added heating cost, he says.

With steel topped out, the contractor is pushing curtain wall erection to close out as much of the remaining cold-weather work as possible. As on other building jobs in Montreal, it's a matter of heating only what is necessary, and getting permanent enclosures up quickly.

Greenspoon, Freedlander & Dunn, Montreal, are the architects for CIL House. Consulting architects are Skidmore, Owings & Merrill, New York City. Consulting engineers are Slocum & Fuller, New York City.

• **Temporary walls**—In contrast, steel erection has just reached into the typical floors of the 45-story Canadian Bank of Commerce building on the west side of Dominion Square. Here Perini Quebec Ltd., the contractor, was able to complete all foundation and below-street structural work before winter. Mechanical trades are working on the basement levels in what amounts to a finished, permanently enclosed building.

Temporary steam heat for the building comes from a spare boiler in a hotel next door.

Above grade, Perini has enclosed the structure to second-floor height with plastic sheet on timber frames. This material will stay in place through the winter months. Above the second floor, the contractor has erected three stories of exterior panels and plans to reuse them at upper levels as the concrete follows behind the steel work.

Because of the constant handling, Perini has made these panels with ¼-in. plywood faces on 2 x 4 frames to minimize patching and repair work. For insulation, the panels are lined with ½-in.-thick sheets of foamed plastic.

The contractor went to this design for several reasons: First was maintenance and repair. Next, the rigid panels withstand the higher wind on upper floors better than plastic panels. And heat retention—with a drop in steam and oil costs—of the combined plywood-and-plastic panels more than offsets the higher initial cost of the enclosures.

Despite the tight enclosure, Vernon Gruenig, Perini's project superintendent, will heat only half of each 100 x 140-ft tower floor at a time, in keeping with the general rule of minimizing heat areas. He plans to concrete two metal-decked floors each week, paralleling the rate of steel erection above. To do it, he heats half the building on three floors—two floors to be concreted plus the floor beneath—then switches heat to the other half of the same floors for the balance of the work.

Peter Dickinson, Montreal, is the architect. M. S. Yolles & Associates, Toronto, are the consulting engineers.

• **How to stay inside**—Several blocks east of the Dominion Square area, Quebec Hydro-Electric Commission is building a 27-story headquarters office building in combination with an underground substation that will handle up to 450,000 kva of load for downtown Montreal office buildings.

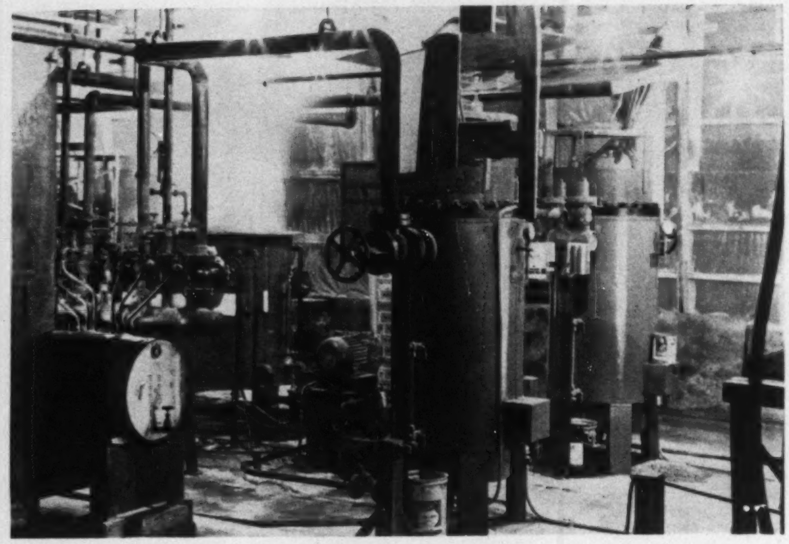
Hydro-Quebec and Collet Freres, Ltd., the general contractor, are meeting the cold weather in a different manner than other builders in the city.

The site measures 250 x 250 ft. The substation, sunk 60 ft below grade into the rear two-thirds of this space, is complete, with most equipment installed and connected. There's no exposed work involved there. The office building at the front of the site has been framed up to the roof and all steel floor deck is installed. The contractor is avoiding as much winter work as possible by limiting construction to the basement, ground floor and penthouse mechanical levels. The building is open from top to bottom.

There's an advantage in waiting until spring to concrete the typical floors. The entire building above street level, in effect, is in the province of the mechanical contractor. Mechanical trades work on the office floors for a few hours at a time when the temperature crawls up toward freezing and there's no wind, but the remainder of the time is spent on the enclosed levels at ground and top of the building.

There's no lack of activity on the job, though. Masonry scaffolds—complete with plastic enclosures—are rigged around the building. During the long cold period, the builder has stockpiled masonry block on each floor only waiting for "a break in the weather"—meaning temperatures in the 30-degree range without too much wind—to start the brick pilasters and end walls. Meanwhile, masons and stone setters crowd the ground enclosure completing the stone entrance and the base wall, which extends up to the second floor.

For the five basement levels, ground, mezzanine and penthouse floors, Hydro-Quebec takes its temporary heat from two compact 1,350-kw electric boilers installed on the ground floor. The entire plant—producing about 500 boiler hp—fits in one typical bay. Hydro-Quebec engineers feel they have the most efficient winter heat plant possible. To duplicate the plant's output with an oil- or coal-fired conventional boiler, they would need equipment "the size of an old time locomotive," as one engineer put it.



COMPACT ELECTRIC BOILERS occupy only a single bay but supply steam heat for work on seven floors and the mechanical penthouse of utility's headquarters project.

• Heating and freezing—Last winter, construction wasn't so clean cut on the Hydro-Quebec job. Foundation work was in progress; wall and footing concrete was going in through the entire winter. Temporary heat came from a single 70-bhp boiler and four portable oil burning heaters rated at 500,000 btu each. Crews erected tarpaulin enclosures over half the site at a time—again cutting the heated area to a minimum—for casting of concrete footings. The heavy foundation walls were cast without any protection, since there was enough bulk for heat of hydration to keep the concrete from freezing.

While keeping the interior of the excavation warm, the contractor also had to operate 500 tons of cooling machinery to keep the ground around the site frozen. Water table at that part of Montreal is only 18 ft below grade and the excavation went down to about 60 ft. Tubular piles, 3 ft c-c, were driven along the site perimeter with double wall freezing lines between them.

Gaston Gagnier is the architect for Hydro-Quebec's office building. Brouillet & Carmel are the structural engineers.

• Outflanking winter—Just south of the Place Ville Marie development, Canadian National Railroad is completing a $17.5-million headquarters building and garage above its own track network. Here, too, the strategy is to outflank the winter instead of meeting it head-on.

During the early planning stages, CNR architects and engineers made allowances in their designs and schedules for advancing work in the "warm" trades to get the office building closed in before this season's cold weather arrived.

Steel erection in the office structure was completed in the fall of 1959. Through last winter the only major outside work on the building was laying of hollow precast concrete floor plank, which could go down without temporary heat. Other essential outdoor work was protected with plastic faced panels. Mechanical work, floor fill and finish was completed during the past year. To beat this winter's weather, E. G. M. Cape & Co., Montreal general contractors for the CNR project, completed 85% of the exterior masonry walls in 2½ months last fall. With this done, interior finishing could go on—with permanent heat in the building—through the winter months. CNR expects to move its personnel into the building this May from offices scattered through 20 locations in Montreal.

Cape's engineers feel that concrete work in winter should be avoided whenever possible simply because of the drop in worker efficiency. An owner's willingness to pay for winter protection cannot cover the slower work pace, they say. Cape estimates that efficiency will drop at least 20% in severe cold—without wind—and that efficiency in concrete placing drops as much as 50%. At present, Cape has from 85 to 100 men working on the job instead of the 200 they would employ during warmer weather.

• Concreting in the cold—In contrast to Hydro-Quebec's and CNR's approach to winter work, there are several reinforced concrete jobs in full production in the downtown area. Boileau Construction Co., Montreal, is adding a floor every two weeks to a 12-story addition at St. Lukes Hospital. On some days it is just too cold to do much (at 10F with wind), and on a couple of days they even had to send the men home. Operations at St. Lukes include setting up part of an additional floor's forms as an enclosure frame, then covering it, the working floor and the floor beneath for heating. Canvas tarpaulins sheath the entire working area.

At one side of Dominion Square, Ross & Anglin, Ltd., Montreal, are working through the cold weather on a 4½-story reinforced concrete garage structure. The job consists of split floors and ramps of flat plate design with a monolithic finish. A ¼-in.-thick epoxy wearing surface with integral waterproofing goes on later. Portable heaters consume a minimum of 300 gal of fuel per day, according to H. Fontin, R&A's project superintendent. He says the horizontal, oil-fired blowers are perfectly adequate for heat—except on the work level during concrete casting. When R&A puts heat on the freshly cast slabs they use vertically fired, stacked heaters. They've found that these exhaust unconsumed carbon that settles on the slabs from horizontal heaters. Unless they keep this film off the slabs, the epoxy surfacing won't adhere when it's applied later during warmer weather.

For enclosures, R&A started at the bottom level with high 4 x 4 posts and beams to carry canvas tops and sides. (Plastic sheet is used only for permanent enclosures.) After each deck is completed, carpenters just cut off the posts a foot or so above the floor and reframe the enclosure on the next deck's framing. The remaining stubs, extending through the concrete, hold brace wires until the reshores are removed. After the four decks are finished the enclosure will be a lot shallower—but it's easier that way, Fontin says.

R&A stockpiles its old plywood form panels from other jobs and tacks them down on the canvas topped enclosure frame for added insulation in the severe cold. The cost of handling the panels each time the enclosure moves up the building is more than offset by the cut in fuel cost.

As the job goes up, crews enclose lower levels for the winter in 6-mil-thick plastic sheet. As soon as a floor is cast and finished, kraft paper plus two inches of loose sawdust go over it for both curing and protection.

Montreal contractors are casual about their showcase of winter building techniques. Many of the firms—and a large portion of the labor force—have a background in heavy winter construction in northern Canada. In Montreal, when the owner is willing to pay, the contractor draws on this experience. "The techniques come naturally," a contractor's engineer said. It was —15F and blowing hard as he spoke.

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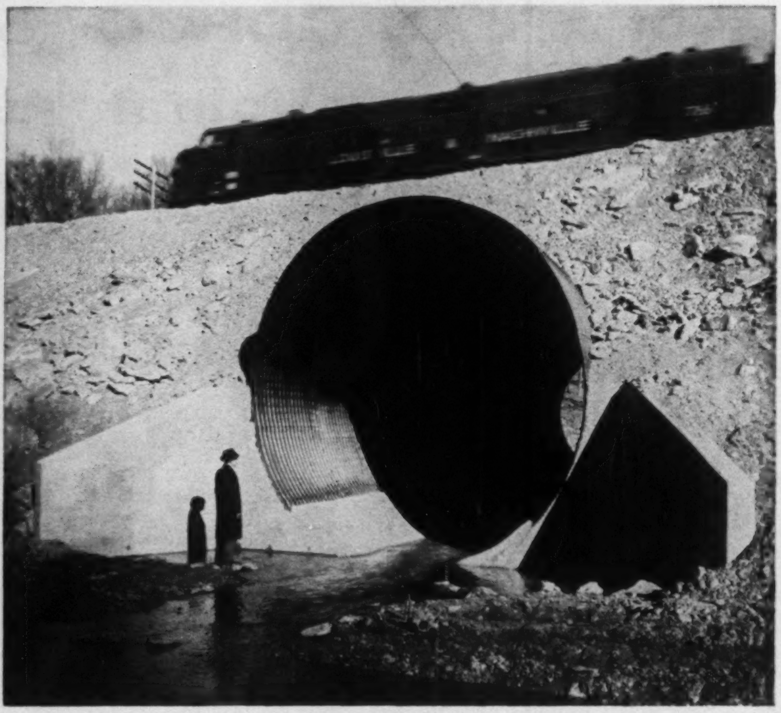

A New Concept for Steel Culverts

Armco Drainage & Metal Products, Inc., has developed a method of design and construction of corrugated metal culverts that offers a simple, mathematical means of analyzing the behavior of a corrugated metal conduit enclosed in compacted fill.

The method is said to allow these structures to be built both larger and lighter, and to permit construction of higher covering embankments than previously thought possible.

Development of the new method involved design and construction of more than 30 test structures ranging in diameter from 16 to 24 ft, with steel-plate walls as thin as $\frac{1}{8}$ in. State and local highway departments and railroad companies participated in the program.

Most of the test structures are replacements for old bridges. Some are underpasses of limited-access highways. Others are stockpile reclaiming tunnels.

According to Howard L. White, chief sales engineer, AD&M's design approach analyzes a corrugated metal structure encased in compacted fill as a thin ring in compression. It is expressed in simple terms as the reverse of "ring tension," which occurs in a pipe subjected to uniform internal pressure.

Prior to introduction of the new method, many engineers were unwilling to make structural analyses of corrugated metal structures because of the complex calculations required. Designs were based largely on gage tables derived by observation.

Mr. White says "the ring compression analysis offers a simple formula for computing the load transmitted to the pipe wall, from which the proper gage of steel can be determined." The analysis can be applied to pipe-arches, as well as circular or elliptical sections. It is said to offer a means of closely estimating the required reaction pressures of soils in the backfill, thus aiding selection of backfill materials and the design of arch footings.

Armco's research re-emphasizes the importance of proper backfilling on the strength of corrugated metal structures. It points to the need for selecting drainable material free of large rocks, lumps or frozen material, alternate placing and tamping of 6-in. lifts under haunches and close to the pipe, and thorough compaction of remaining fill near the pipe with vibrating or mechanical equipment.

Careful control of backfill placing often will permit construction of a large diameter structure without vertical or horizontal strutting.

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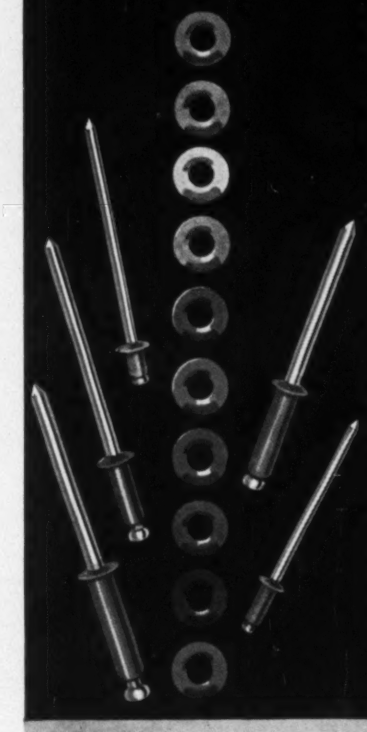

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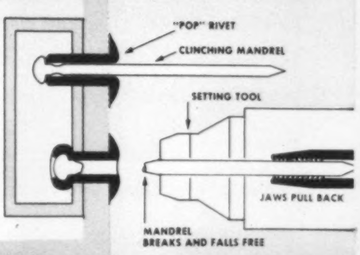

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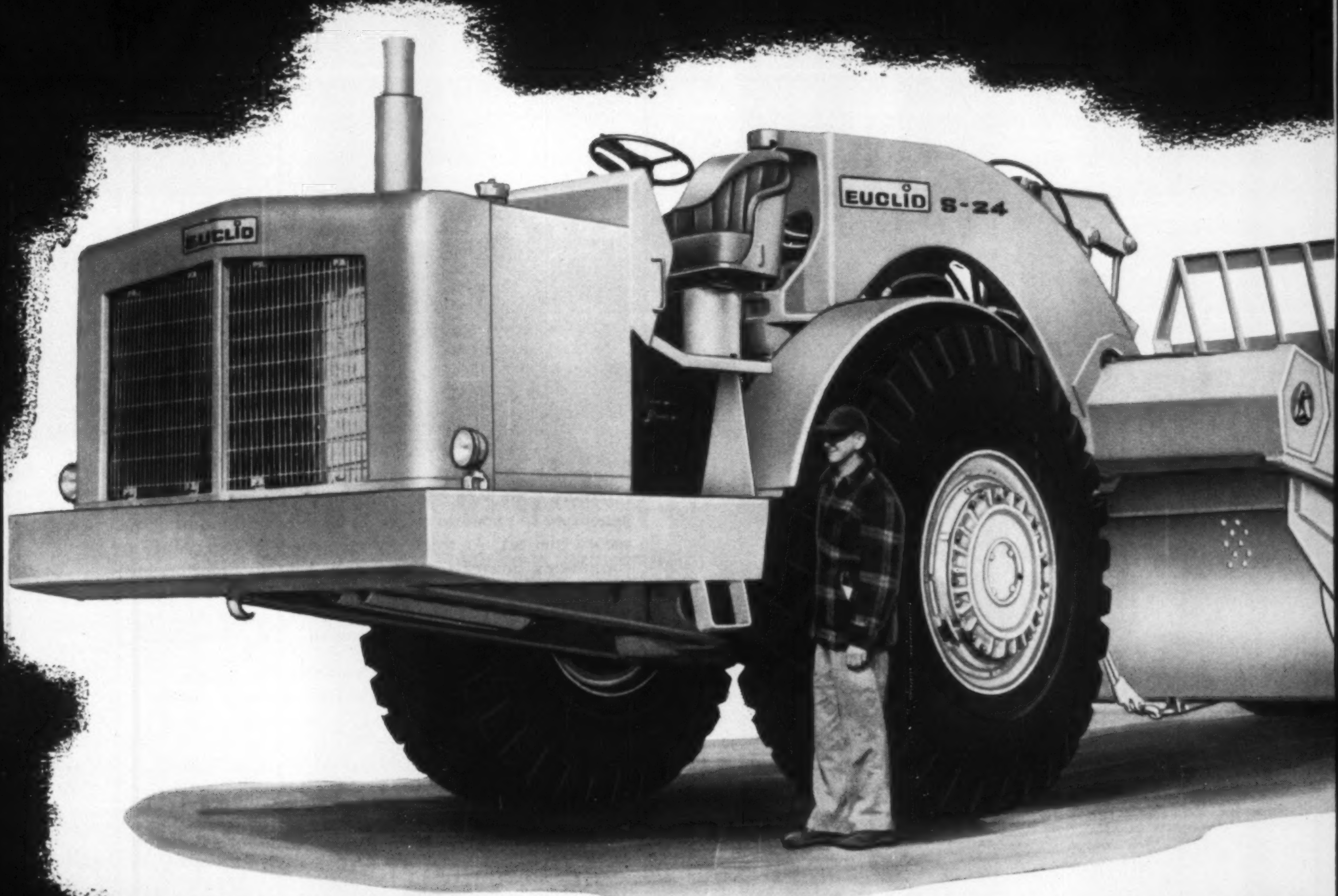
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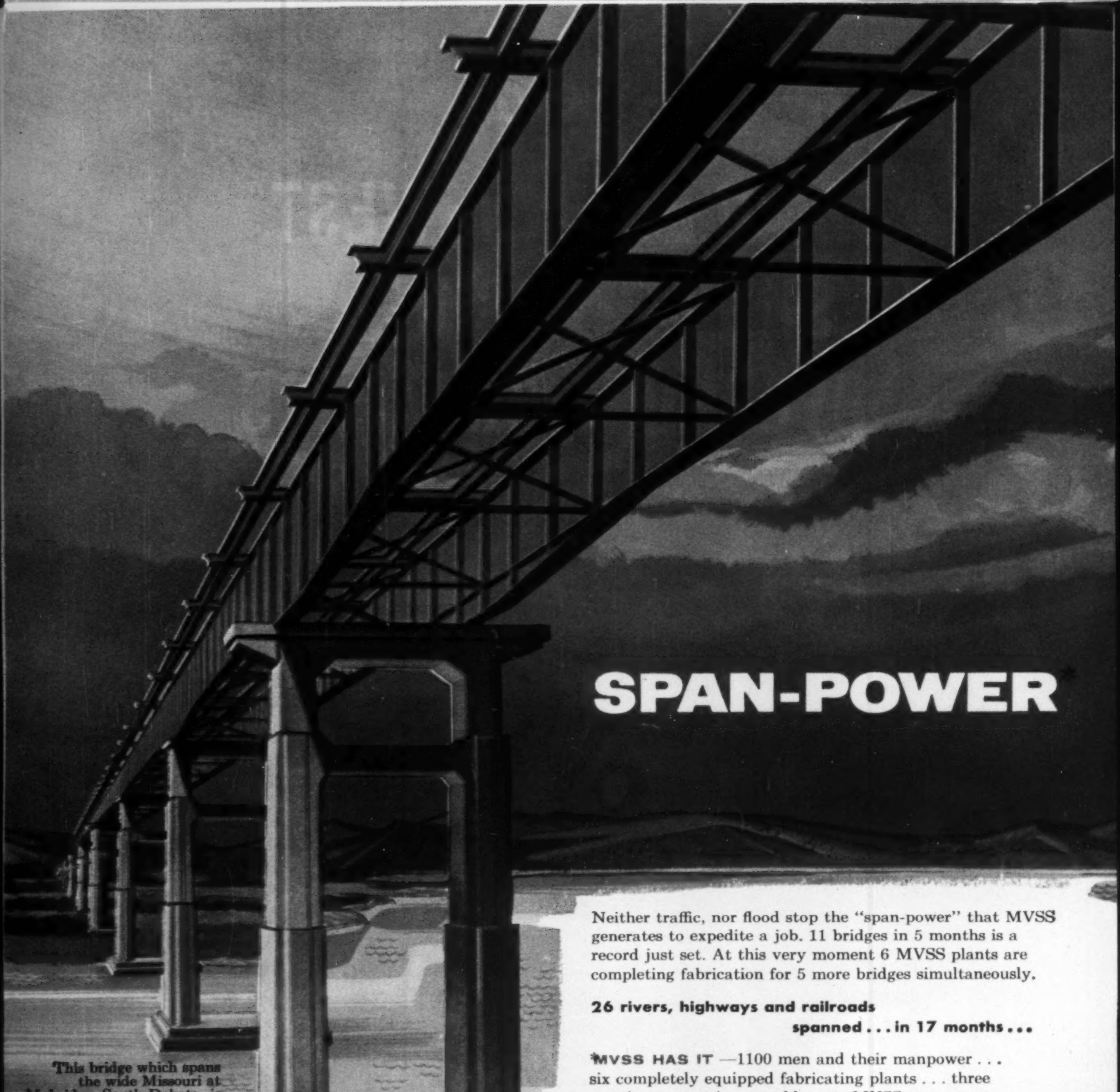


SPAN-POWER*

Neither traffic, nor flood stop the "span-power" that MVSS generates to expedite a job. 11 bridges in 5 months is a record just set. At this very moment 6 MVSS plants are completing fabrication for 5 more bridges simultaneously.

26 rivers, highways and railroads spanned . . . in 17 months . . .

***MVSS HAS IT** —1100 men and their manpower . . . six completely equipped fabricating plants . . . three erection companies . . . add up to MVSS *span-power*.

This bridge which spans the wide Missouri at Mobridge, South Dakota, is the largest bridge between the Mississippi River and the West Coast and includes these MVSS all-welded plate girder spans.

Superstructure Contractor:
John F. Beasley
Construction Co.

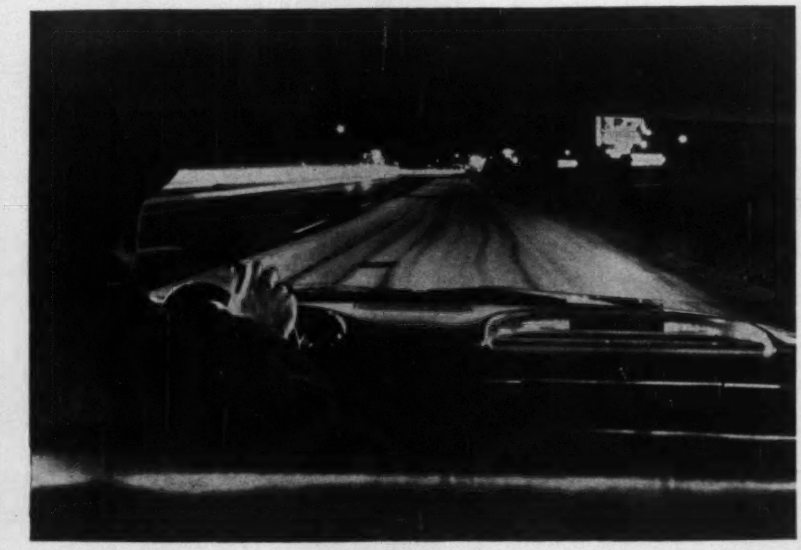
Completely shop assembled bridges, too.—For this State of Illinois bridge (considerably skewed and on a 3.54% grade) MVSS fabricated 717 tons; three spans were shop-assembled and reamed while assembled. CTA bridge crosses over Congress Expressway, Chicago.

MISSISSIPPI VALLEY
STRUCTURAL STEEL COMPANY

MVSS SERVICE

Six Strategic Plants. Chicago (Melrose Park) • St. Louis, Mo. • Flint, Michigan Lansing, Michigan • Decatur, Ill. • Chattanooga, Tenn.

©1960 MVSS CO., Decatur, Illinois



Road Paint Directs Reflection

A highway paint that increases drivers' nighttime visibility by reflecting headlights in one direction only has been developed by research engineers in Buffalo, N. Y. The paint is sprayed on a highway at a shallow angle so that it is applied to only one side of the minute bumps and ridges of the surface.

Officials of Cornell Aeronautical Laboratory, Inc., say that the reflectivity of a car's headlights is as much as three and one-half times greater on these painted surfaces than on unpainted highways. So far, only asphalt surfaces have been used in the tests.

Because of the directional reflectivity, only the right lanes of traffic in a highway would be illuminated by headlights (see picture). An opposing lane would appear dark.

A 5-ft strip can be painted on a highway for about the same cost of painting a typical 4-in. center strip in the conventional manner, say the developers.

The New York State Department of Public Works sponsored the research project. The department will test the paint on several highways this summer.

Polymer Mulch Controls Erosion

Engineers are evaluating results of an experimental spray mulch application of Vulcanol, an elastomeric polymer emulsion being used to control soil erosion on the Garden State Parkway in New Jersey.

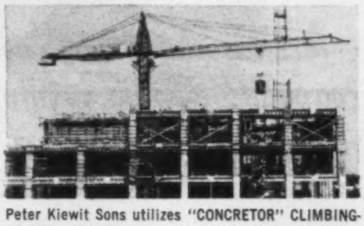
The material was applied by Alco Oil & Chemical Corp. along about one-third mile of the parkway after the ground had been prepared by the addition of lime to increase the pH value of the soil.

Fertilizer and seed were spread, after which emulsion was sprayed over the area. Application time is about 1¾ hours per acre, depending on accessibility of the area.

The emulsion dried in about two hours, after which the area could be watered or irrigated as needed. A web-like, non-water-soluble coating is formed that stays in place long enough for seeds to germinate (from one to six months). It is reported to speed germination. After germination takes place, the emulsion decomposes and requires no further attention. The producer estimates the applied cost at four cents per sq yd.

Mulch is sprayed in an emulsion.

HOW "CONCRETOR" The Linden Crane CLIMBING-CRANES REVERSE RISING CONSTRUCTION COSTS



Peter Kiewit Sons utilizes "CONCRETOR" CLIMBING-CRANE in effecting important savings of time, labor, money on own office building in Omaha, Nebraska.

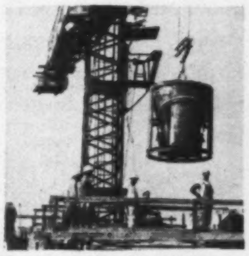
The "CONCRETOR" CLIMBING-CRANE goes up with the building while work is in progress . . . 2-3 floors at a time . . . the sky's the limit. Climbs by its own hoisting winch on floors or inside elevator shafts.

"CONCRETOR" CLIMBING-CRANES efficiently place loads "on a dime". . . up to 100 foot radius due to the 360 degree swing of its 100 foot jib. They eliminate the need for expensive rehandling of materials over unnecessary ramps and runways, substantially lowering operating costs. Recommended for all types of construction including industrial, apartment and office buildings, silos, water towers, bridges and viaducts.

"CONCRETOR" CLIMBING-CRANES cost about half of what you'd expect to pay for earth-bound cranes of similar capacity. With ordinary use, the cost can be amortized over a period of about 2 years.

CHOICE OF 4 MODELS — RENTAL/ PURCHASE PLANS.
Delivered any where in U. S.
Factory-trained service engineers available.

For Literature Address Dept. EN-2



Crane is remote-controlled by one man from working deck with 3½ lb. electronic panel.

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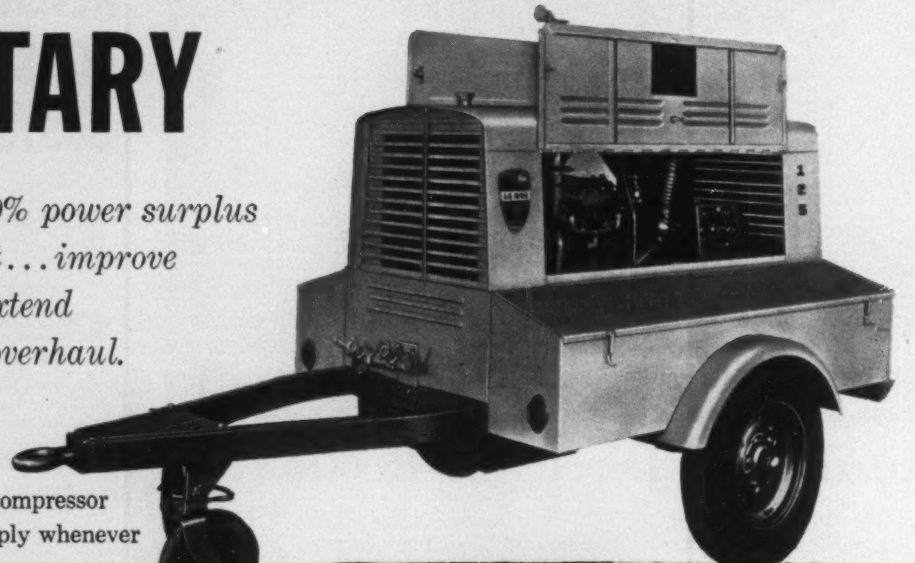
NEW MORE POWERFUL LE ROI 125 ROTARY

15% more hp and 60% power surplus assure capacity output... improve efficiency... and extend time between engine overhaul.



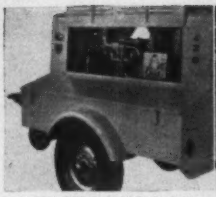
This new Le Roi 125 Rotary compressor guarantees full 125-cfm air supply whenever and wherever you need it. Thus, you can replace two smaller machines *and operators* with a single 125. And you don't have to waste a larger compressor on jobs where 125-cfm air supply is adequate.

Extra power enables the engine to deliver full capacity at only 1600 rpm — 150 to 400 rpm slower than other makes. This cuts wear on both engine and compressor parts and reduces upkeep. What's more, the use of Stellite exhaust valves and valve seat inserts and positive valve rotators in the engine improves fuel economy and extends valve life.

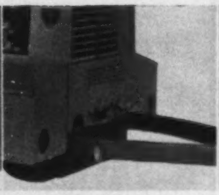
The new Le Roi 125 Rotary incorporates "double life" reversible rotors, a Le Roi exclusive. Spline couplings assure positive power transfer from engine to compressor and oil pump. Dump valve, minimum pressure orifice, low-oil-pressure cut-out switch, and thermo by-pass valve operate automatically, providing protection against down-time due to accident or neglect.

At 2190 lbs. dry weight, the Le Roi 125 is the lightest compressor in its class. It is designed for easy handling on the site and for fast inspection and servicing in the field. Gasoline and diesel models available on wheel mounts — and gasoline utility model for cross truck bed mounting.

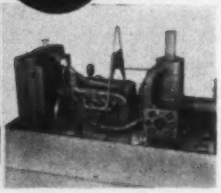
PC-101



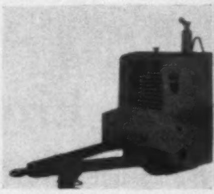
MORE TOOL SPACE in lockable tool boxes on each side.



AIR SERVICE valves and hose connections are protected by tow bar.

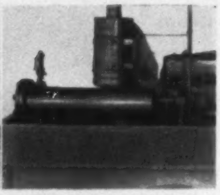


LIFTING BAIL permits easy, safe overhead pickup.

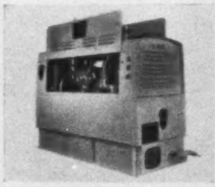


PROTECTION against damage in transit assured by mounting radiator and oil cooler at tow-bar end.

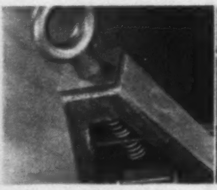
REMOVABLE HOOD can easily be lifted off by two men after loosening just 8 cap screws.



OIL SEPARATOR is independent of the receiver and easily accessible for changing separator element.



UTILITY MODEL is base mounted . . . all controls and service valves grouped for "curb-side" operation.



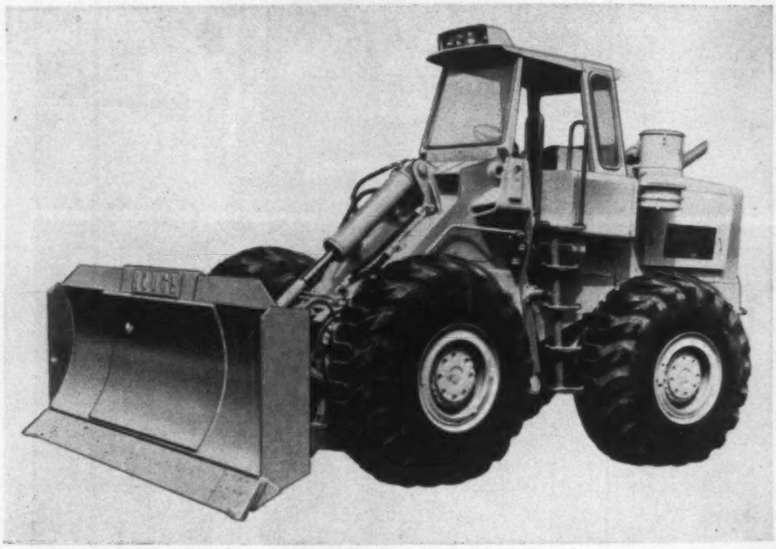
SWIVEL TOWING EYE is spring-loaded to ease towing strain over rough terrain and during acceleration.

STURDY THIRD WHEEL easily lifts out of way and locks for towing — no "knuckle-busting."

Ask your Le Roi Distributor for more information. Or write directly to us at the address below.

FOLDING PANELS lock up and out-of-the-way . . . aid operation and servicing.

LE ROI Division of Westinghouse Air Brake Co. Sidney, Ohio



Dozer Converts to Front-Loader

The D-120, first model in the "Paydozer" line, has a three way blade action that permits raising and lowering, tilting forward or backward and raising or lowering either side.

The D-120 can be converted to a front end loader in less than two working days. A conversion kit for the change-over is optional.

The rig weighs 55,000 lb and is powered by a 300 hp turbo-charged diesel engine. It has full power shift transmission through four forward and four reverse speed ranges, and can travel in either direction at speeds up to 26 mph.

All four wheels have power air brakes and steering is assisted by an hydraulic power booster. Power transfer differentials effectively distribute torque to provide a maximum of traction. If one wheel can exert more tractive effort, it automatically receives 38% more torque.

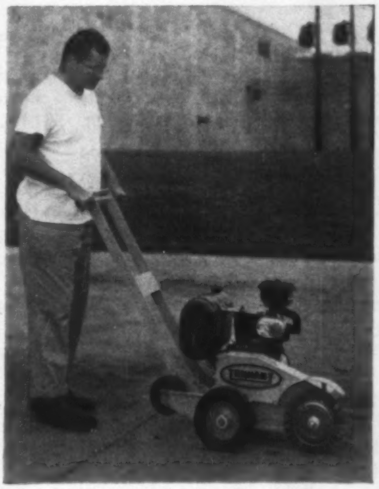
The dozer blade of the D-120 is 12 ft 4 in. wide, 4 ft 8 in. high. Maximum clearance under the blade at full lift is 3 ft 2 in., and the blade can be dropped to 1 ft 6 in. below ground level. The blade can be pitched forward or backward a total of 35 deg and it has a side tilt of 10 deg each way for a total of 20 deg. FRANK G. HOUGH CO., 772 SEVENTH AVE., LIBERTYVILLE, ILL.

Sweeper Speeds Joint Resealing

The Model JS joint sweeper is a 7-hp machine which rapidly removes loose cement, dust, dirt and debris from pavement joints prior to resealing, according to the manufacturer. It sweeps joints ¾ in. to 2¼ in. wide.

The unit cleans joints or cracks to a maximum depth of 1½ in. It reportedly provides a clean, sharp surface, free of loose debris, for bonding properly with joint-sealing compounds, seals, and fillers.

A 24-gage steel-wire brush rotates at 1,800 rpm. Brush bristles are specially tempered and twisted into tufts for added stiffness. As the 9½-in.-dia brush revolves, it throws loosened dirt, pebbles and debris forward, away from the operator. The machine weighs 165 lbs. G. H. TENNANT CO., 721 N. LILAC DRIVE, MINNEAPOLIS 22. MINN.



MACHINE sweeps joints to 1½ in.

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first mobile self elevating high capacity batching plant

The new HELTZEL SELF-ERECT MOBILE BATCHING PLANT is so mobile — so easy to erect — that you can batch at one location in the morning — move miles away and be set up, ready to batch again the same afternoon. Here is the first high-capacity mobile plant that offers all the production advantages of a permanent installation.

Erection is fast and economical — no crane is required — set-up cost for plant shown above is around $200.00. A two-man crew with a front-end loader can set up in 2½ hours or less. Self-contained hydraulic mechanism elevates cement unit.

Standard 220- or 440-volt power source and water line are only connections required. Cement and aggregate handling systems are permanently mounted on plant . . . are fully integrated and automatic. Controls and dial heads are mounted on operator's platform to provide simplicity of operation. Ground storage aggregate hoppers can be charged with front end loader, clam shell, or other conventional methods. Three-belt conveying system speeds batching of 2 or 3 aggregates.

AVAILABLE IN 4 MODELS

SERIES 600 — ready-mix plant with split 7½ cubic yard batchers, available in capacities ranging from 65 to 180 cubic yards per hour.

SERIES 700 — mobile dry batch or paving plants with 1½ cubic yard batchers, in capacities ranging from 130 to 165 cubic yards per hour for one-stop operation.

SERIES 800 — two-stop paving plants with 1½ cubic yard batchers, in capacities of 260 and 330 cubic yards per hour.

SERIES 900 — highly efficient mobile central mix plants, available in production capacities ranging from 90 to 270 cubic yards of concrete per hour.

For complete information, send for illustrated bulletin or contact your HELTZEL distributor.

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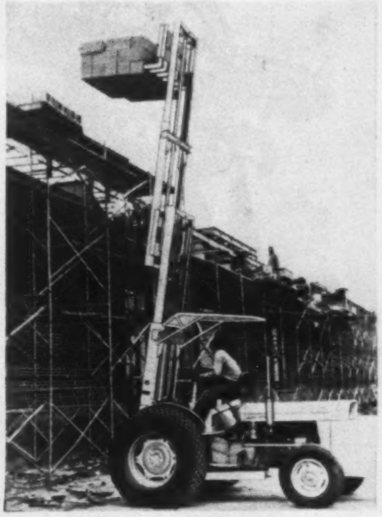


High Reaching Fork Lift Has Many Attachments

The Model 204 Fork Lift Truck provides equal speed forward or in reverse without shifting, plus a lift reach of 20 ft with mast extension, according to the maker.

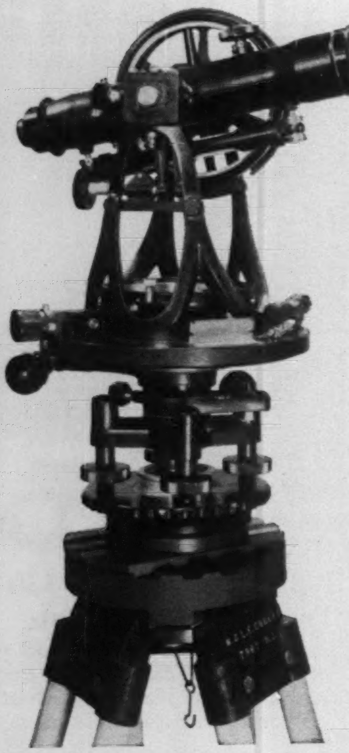
Equipped with instant reverse, the rig eliminates shifting or clutch operation so that the operator can devote his entire attention to the job of lifting and transporting materials. A variety of attachments are available in addition to the standard forks—block forks, hydraulic side shifts, mast extension, hydraulic material buckets, and angle dozer.

All units are interchangeable and easily installed on the fork lift mechanism. The lifting rig has a high operating pressure of 2,250 psi and will lift 5,000 lb at 25-in. centers to 10 ft on a standard mast. With the mast extension it will lift up to 1,500 lb at 15-in. centers to 20 ft. MASSEY-FERGUSON, 1000 SOUTH WEST ST., WICHITA, KANSAS.

Big Earth Auger Designed To Bore in Coral, Basalt

A 48 x 54-in. earth auger designed for use on heavy duty earth boring machines is called Pengo Series AA. It is available in a full range of sizes and diameters, from 24 in. to 48 in., in 54 in. lengths. These same sizes plus a range of lengths from 54 in. to 96 in. are available in the twin helix type.

All sizes use the same standard pilot bit. The new auger is designed for boring in coral, basalt and other materials too severe for most augers and teeth in general use. PETERSEN ENGINEERING CO., INC., SANTA CLARA, CALIF.



A Guide to OP and VP

Gurley Optical Plummet

The Optical Plummet Transit opens new avenues in accuracy, speed and convenience...eliminates inconvenience and lost time involved in centering a plummet over a point.

The Optical Plummet is a telescope through the vertical center (spindle) of a transit. It will point vertically when the transit plate is level. The telescope is turned at right angles by a prism, so that vision is actually horizontal. Setting and adjustment may be checked very simply and precisely by rotating the instrument 180 degrees.

The Gurley Shifting Head Tripod permits 1¾" movement of the transit in two directions 90° separated, without material disturbance to the level of the plate (the Optical Plummet thus remains operative through the entire centering procedure).

Advantages of the Gurley Optical Plummet Transit

- Saving in set-up time, as much as 33%—a factor when a crew is waiting.
- Eliminates swaying plumb bob.
- More accurate centering over point.
- On construction work—sights on points some distance below, such as encountered in bridge work and building construction.
- Made in U.S.A.—Little servicing, but easily repaired when necessary.

Gurley Optical Plummet Transits Available in 21 Combinations

With Circular Compass	With Trough Compass	Without Compass
OP-52	—	OP-57
OP-62	—	OP-67
OP-132	OP TC 137	OP-137

And with limb reading to 1 min.; or 30 sec., or 20 sec. . . . Stiff-leg or Extension-leg Tripods with Constant-Level Shifting Head and wide-frame European-type construction.

Variable Power is standard on Gurley Transits and Levels:

- Wide range of magnification with **one** eyepiece—zooms for near or distant objects
- Easily adjusts to suit weather and light conditions
- Built-in haze filter

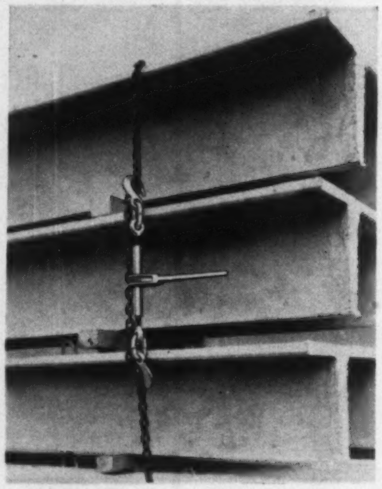
At high power:
- longer shots
- less glare in bright sunlight
- increase in readability
- no glare...high contrast
- blacks and whites stand out

At low power:
- greater field
- brighter field
- decrease of heat waves

We will be pleased to send you further information about both Gurley Optical Plummet Transits and Gurley Variable Power Eyepiece.

Both Optical Plummet and Variable Power are patented.

W. & L. E. Gurley • Union Plaza, Troy, N. Y.



Load Binder for Trucks Works Like a Come-along

A ratchet type load binder is designed to ease and speed tying down truck loads. Called the Lebus Load Binder, the unit works like a come-along and has an 8-in. turnbuckle run that permits even tightening of a load.

On compressible loads, the ratchet binder often eliminates the need for alternate tightening on two binders to get a single tie. On incompressible loads it eliminates the "half link of looseness" so often found with conventional snub binders. It has square threads, which allow for easy tightening and self cleaning.

The Lebus Load Binder is available in three models to fit ⅜-, ½-, and ⅝-in. chain. Breaking strength of the three models are 16,200 lb, 26,000 lb and 37,000 lb respectively. CROSBY-LAUGHLIN DIV., BOX 570, FORT WAYNE, INDIANA.

Electric Motors Offered In Fractional Hp Range

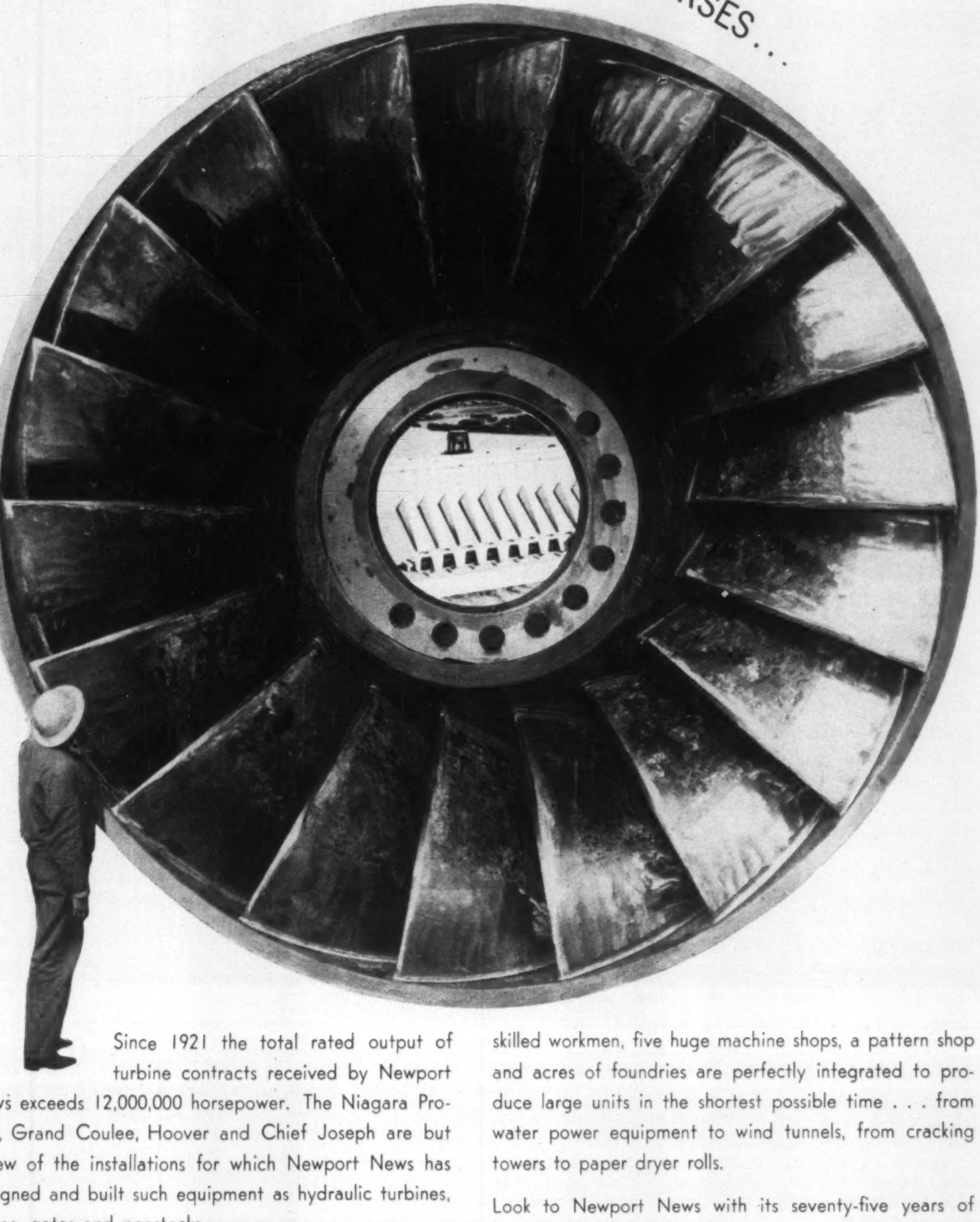
A fractional horsepower variable speed drive, the Fractional Horsepower Speed Trol, has speeds ranging from 4660 rpm to 1.2 rpm. Variations up to ten to one are offered in ¼, ½, and ¾-hp ratings.

NEMA standard dimensions for shaft height and diameter permit substitution with standard motors. Both single-phase and three-phase types are available.

Enclosure types are drip-proof, totally enclosed and explosion proof.

Unit may be foot mounted in any position or can be furnished with face mounting bracket. It is available with right angle and helical gears. STERLING ELECTRIC MOTORS, INC., 5401 TELEGRAPH RD., LOS ANGELES 22, CALIF.

NEWPORT NEWS HARNESSES 12,000,000 HORSES...

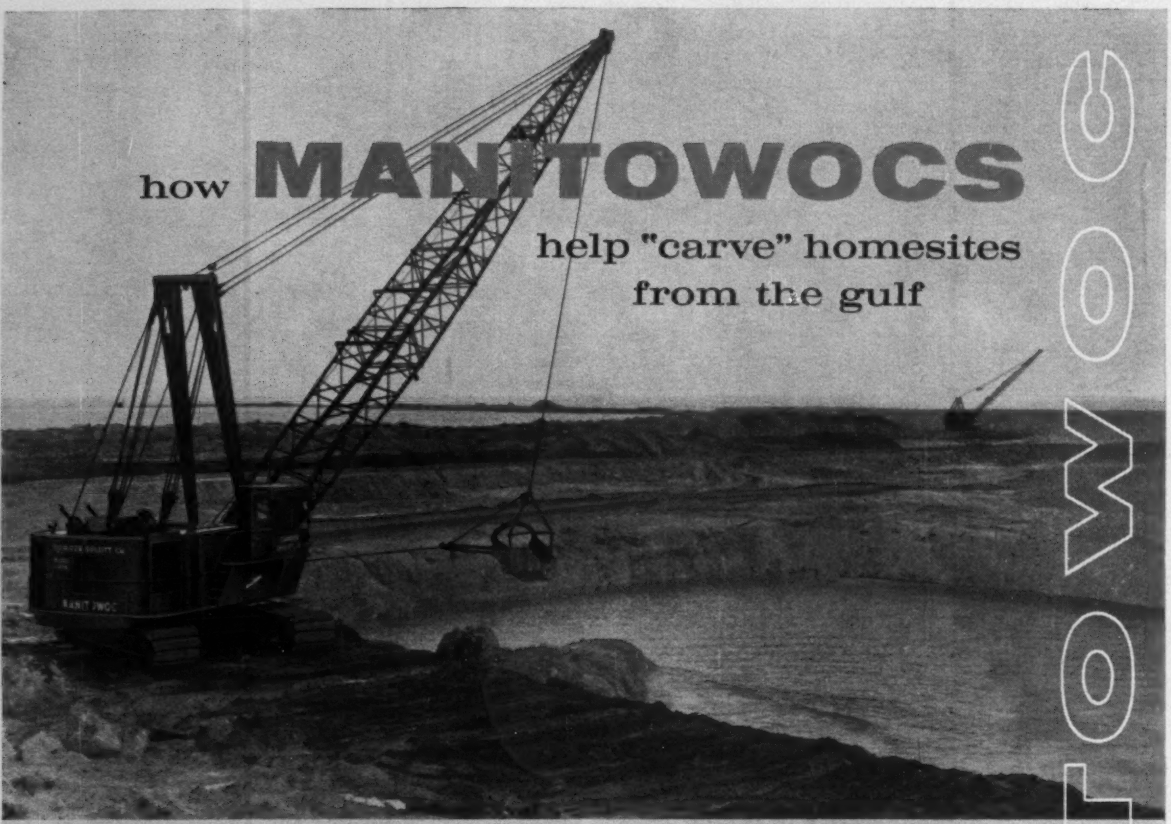


Since 1921 the total rated output of turbine contracts received by Newport News exceeds 12,000,000 horsepower. The Niagara Project, Grand Coulee, Hoover and Chief Joseph are but a few of the installations for which Newport News has designed and built such equipment as hydraulic turbines, valves, gates and penstocks.

Newport News has the men . . . the methods . . . and the machines to take gigantic jobs like these in stride. Large engineering and design staffs, hundreds of highly skilled workmen, five huge machine shops, a pattern shop and acres of foundries are perfectly integrated to produce large units in the shortest possible time . . . from water power equipment to wind tunnels, from cracking towers to paper dryer rolls.

Look to Newport News with its seventy-five years of metal fabricating experience. Your inquiries are invited.

Newport News
SHIPBUILDING AND DRY DOCK CO.
NEWPORT NEWS, VIRGINIA



how MANITOWOCS help "carve" homesites from the gulf

Manitowoc 5-yd. dragline dredging canal at site of large Florida real estate development. In the background is a 4-yd. Manitowoc.

Acres of land are being moved into the sea on the West coast of Florida for the construction of a huge new real estate development. Contractor for the massive reclamation job — over 3200 acres are involved, 75% to be built into the Gulf of Mexico — is the Sumner Sollitt Co. of Chicago, under contract to the Flor-A-Mar Development Corp.

In the first step of construction dikes are built 30 feet wide and 15 feet above the high tide level. Two parallel dikes extend straight into the Gulf for about one mile, and half-a-mile apart. A third dike seals off the enclosure except for a sluice through which most of the water drains at low tide. Immediately after draining, the sluice is closed off and the remaining water pumped out.

Among the equipment on the job are a Manitowoc Model 4500 dragline with a 5-yd. bucket and 140 feet of boom, and a Model 3900 using 80 feet of boom with a 4-yd. bucket. Besides being used for dike construction, both machines excavate material for homesites within the dike perimeter and dig canals 100 to 200 feet wide and 10 to 30 feet deep, providing each homesite with navigable water frontage. Canal routes are dynamited from the bottom of the Gulf, which is solid marl and limestone rock in this area. The 5-yd. Manitowoc moves up to 3000 yds. daily of this tough material, despite the hard digging and need for frequent machine moves. Doing identical work, the Manitowoc 3900 has also racked up an impressive output record.

On any size job a Manitowoc can produce outstanding yardage for *you*. A call to your distributor will bring full details on the complete line of Manitowoc excavators, cranes, and truck cranes.

2-P

Manitowoc

MANITOWOC ENGINEERING CORP.
(A subsidiary of The Manitowoc Company, Inc.)
Manitowoc, Wisconsin

SHOVELS	CRANES	DRAGLINES	TRENCH HOES
1¼ — 6 YDS.	25 — 125 TONS	1¼ — 7 YDS.	1¼ — 3 YDS.

Obituaries

C. G. Paulsen Dies; Was Hydraulics Expert

Carl G. Paulsen, 73, former chief hydraulic engineer for the United States Geological Survey, has died.

Mr. Paulsen had been River Master on the Delaware River since 1954, when the U. S. Supreme Court established a new diversion formula for New York City. He was also chairman of the Arkansas River Compact Commission and a member of the International Joint Commission's engineering boards for studying problems involving the Columbia and St. Johns rivers. He was a member of the three-man United Nations Commission working on the development of the Mekong River between Laos, Cambodia and Thailand.

He began his government career in 1911 as a part-time hydrographer with the Bureau of Reclamation. After graduating in civil engineering from the University of Idaho in 1913, he joined the Geological Survey. He went to Washington, D. C., in 1931 as chief of the Surface Water Branch and was made chief hydraulic engineer in 1946. He retired in 1957.

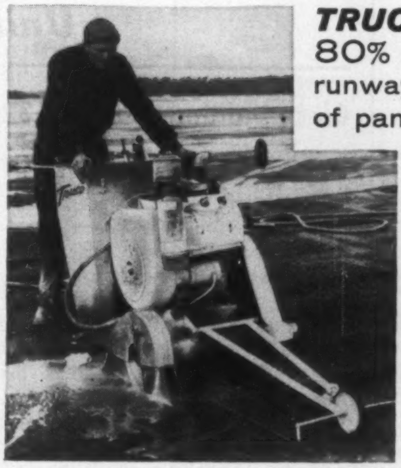
From 1953 to 1955, Mr. Paulsen was a director of the American Society of Civil Engineers.

J. Smith Miller, 82, construction engineer and former senior vice president of Dravo Corp., Pittsburgh. Mr. Miller retired in 1954 after 48 years with Dravo. In 1921, he took over planning and directing general construction for Dravo Contracting Co., which he later served as president and director. When the firm was incorporated in 1936, he became senior vice president.

John C. Beam, 71, retired Army engineer. In his career he worked on Fort Peck, Hungry Horse and Grand Coulee dams and the highway to Alaska.

Barry Dibble, 79, consulting electrical and mechanical engineer of Redlands, Calif. Working with the Bureau of Reclamation from 1909 to 1924, he supervised studies for Grand Coulee Dam and participated in planning Hoover Dam. As a consultant since 1924, he has made studies for the Bonneville Power Administration and for the Flathead hydroelectric plant at Fort Peck in Montana.

Murray P. Nicol, 74, retired president of Struck Construction in Louisville, Ky. He was one of the incorporators of the Struck firm in 1921 and has been president since 1931. The firm specializes in office and public buildings.



TRUCO® DOES IT AGAIN!
80% cost reduction in airport runway lighting by installation of pancake lights

Above: Drilling holes for light units.
Left: Cutting slot raceways for wiring.

Truco "pancake" diamond drill on Truco Model G, gasoline powered, truck-mounted drill rig cut holes for light units 6" dia. x 1" deep. Truco Concrete Saw with 14" Truco diamond blades sawed miles of slots for wiring raceways in both bituminous and portland cement concrete runways. Even greater savings now possible using new Tru-Vac® Vacuum Pad to anchor drill rig in seconds. Write for our new Catalog.

TRUCO

MASONRY DRILLING DIVISION
WHEEL TRUEING TOOL COMPANY
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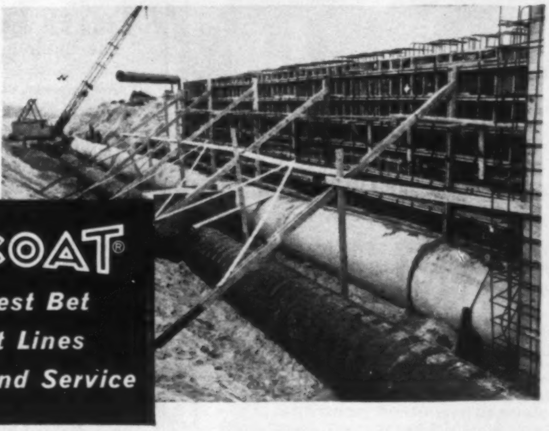
NO PLACE TO GAMBLE

Joints on steel plant water line are TAPECOATED to provide protection equivalent to coating on the pipe.



TAPECOAT®
is Your Best Bet to Protect Lines in Underground Service

You take no chances when you specify TAPECOAT coal tar coating in handy tape form for pipe, pipe joints, fittings, couplings, tanks, tie rods, and conduit on new construction or for maintenance.

Since 1941, TAPECOAT has proved its superiority in resisting moisture, acids, alkalis, and other severe corrosive and abrasive conditions.

TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths. It is easy to apply with the use of a torch to bleed the coating which serves as both bond and protection. No skilled help required.

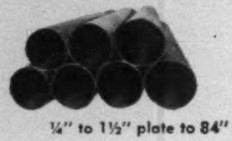
A TAPECOAT sales and service engineer is ready to help you on any corrosion problem. Write for details today.

Originators of Coal Tar Coating in Tape Form

The **TAPECOAT** *Company* *1551 Lyons Street, Evanston, Ill.*
Representatives in Principal Cities
Manufactured and distributed in Canada by The Tapecoat Company of Canada, Ltd.
25 Haas Road, Rexdale, Ontario

POSEY WORKS *FOR BETTER*–

LARGE O.D. STEEL PIPE



¼" to 1½" plate to 84" O.D.

Mild steel, high carbon, high manganese steel, wrought iron, stainless steel, stainless & nickel clad pipe to AWWA, ASTM, ASME Spec.

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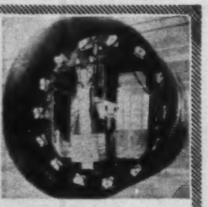
POSEY IRON WORKS INC

Custom Fabrication For Over 50 Years

DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.

SHIELDS AND SAND HOG EQUIPMENT



Bulletin No. 23 shows installations of Mayo shields, cylindrical air locks, lock doors, medical locks and tunnel cars. Send for your free copy.

MAYO

TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

ALWAYS USE POSTAL ZONE NUMBERS

Without the zone number addresses are incomplete in 106 U. S. cities.

Close bidding marks $132,129 . . .

New York City Water Main

New water mains will be installed in New York's Botanical Gardens under this $132,129 Department of Park's contract. A narrow $2,046 separated Acme Excavating Co.'s winning bid from the second low, and only $3,788 separated Acme's figure from the third low.

Acme was able to squeeze past D. Reiner Inc.'s second low by underbidding on large quantity water pipe items. For 5,823 lin ft of cast-iron pipe, Acme's $4.70 was $1.10 a lin ft cheaper; similiarly, for 3-in. cement-lined steel pipe, Acme's $2 is $0.50 a lin ft lower.

This job will partially complete a new water network in the garden area of Bronx Park. The contractor may encounter some difficulties in placing the pipe since the site contains many rock outcrops as well as valuable and priceless plant material.

Prevailing wages in the Manhattan area include: carpenters, $4.55/hr; carpenter's helpers and excavating laborers, $3.45; tractor operators (34-49 hp), $4.175/hr: power shovel operators, ½ and ¾ cu yd, $5.05/hr.

The bidding included:

1C	Acme Excavating Co., Bronx, N.Y.	$132,129
2	D. Reiner, Inc., Bronx, N.Y.	134,175
6	Wm. Clemente Corp. Oceanside, N.Y.	183,427
EE	Department of Parks	150,000

Bids: 9-20-60 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, rock	cy	2,199	$25.00	$22.00
unel, earth	cy	5,077	3.00	3.50
Pipe stl water, cmt-lined				
1¼"	lf	2,583	1.00	1.00
1½"	lf	2,677	1.30	1.10
2"	lf	2,455	2.00	1.20
3"	lf	3,200	2.00	2.50
CIP*, water 4"	lf	1,085	3.50	3.30
6"	lf	5,823	4.70	5.80
8"	lf	472	7.00	6.80
Vlv, gate & boxes, 1½"	ea	8	30.00	30.00
2"	ea	8	30.00	35.00
3"	ea	9	50.00	50.00
4"	ea	2	75.00	70.00
6"	ea	6	75.00	130.00
8"	ea	1	150.00	200.00
Hydrants, yard	ea	60	50.00	60.00
fire, vlv & boxes	ea	8	400.00	400.00
Fountain, drinking	ea	6	400.00	350.00

* ASA cl 150 spun pipe, AWWA cl "B" bell & spigot with cl "D" fitting

Completion time: 120 calendar days
Liquidated damages: $25.00 per day

Wide Spread in California Seeding and Planting Bids

J. A. Roberts, Santa Maria, Calif. was low bidder for this $10,021 contract for planting the inner channel-dike slopes of the Arroyo Grande Creek Channel. The second low was 39% larger than Roberts' bid, and the high of four was 73% above the winning figure.

Item bids were as wide spread as the totals; prices bid for watering ranged from $40 to $215 an acre, and seedbed preparation, fertilizing and seeding jumped from $145 to $450 an acre. The job is for the San Luis Obispo County Flood Control and Water Conservation District.

The contract, to prevent soil erosion and minimize flood hazard, includes spraying and planting the inner channel-dike slope. Kikuyu grass (8-in. cuttings) will be planted in 3-ft rows with a distance of 3-ft or less between plants. Planted by hand, they must be evenly distributed at the rate of not less than five thousand per acre of slope area planted. Cuttings in alternate rows will be staggered.

Watering the inner channel-dike slopes must be accomplished with fresh water suitable for plant use. Use of water from the Arroyo Grande Creek Channel will not be permitted.

About 40 lbs of nitrogen fertilizer per acre of slope—in the form of ammonium nitrate, ammonium sulphate, or aqua ammonia—will be applied either prior to irrigation or introduced directly into the irrigation water.

The general prevailing rate of wages applicable to soil conservation work includes: carpenters, $3,825/hr plus $0.10 Health & Welfare and $0.10 Pension; laborers, $3.08 plus $0.10 H & W; landscape gardener and nursery man, $3.18 plus $0.10 H & W; water truck driver, $3.425 for under 2,500 gal, $3.545 for 2,500-4,000 gal, and $3.665 for over 4,000 gal—all plus $0.10 H & W.

The bidding included:

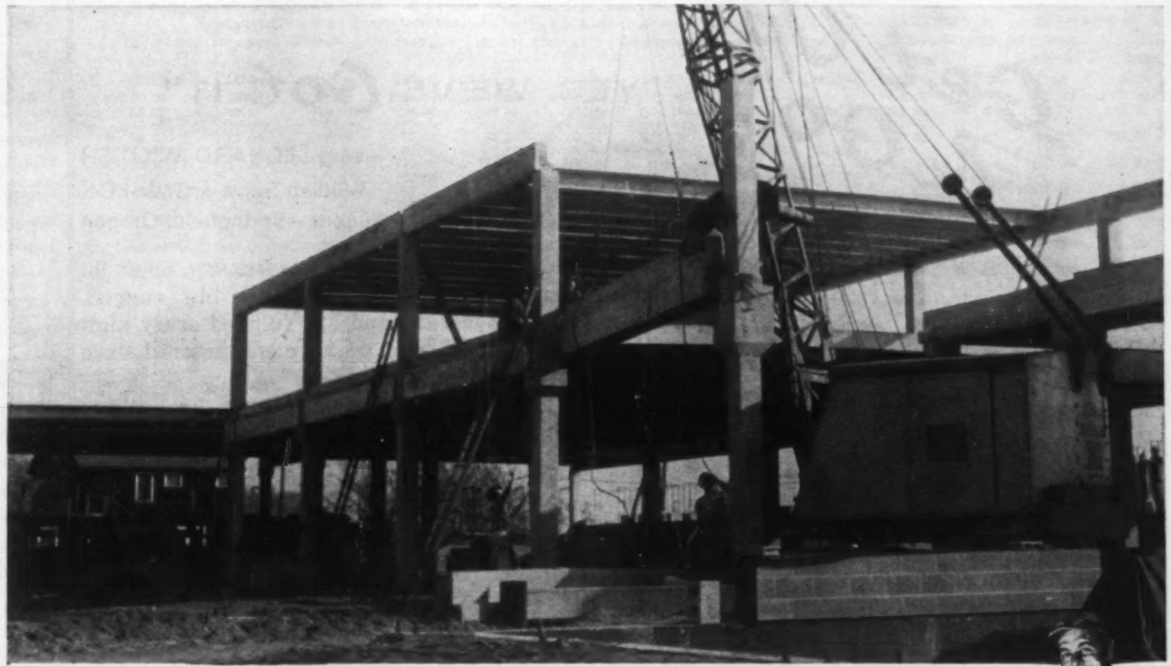
1C	J. A. Roberts, Santa Maria, Calif	$10,021
2	Moulder Bros., Glendale, Calif	16,549
4	Cooper's Nursery, Shaffer, Calif	37,682

Arroyo Grande Creek Channel Vegetation

Bids: 9-6-60 Items	Unit	Quantity	Unit Prices 1C	2
Fertilize & seed for seed bed preparation	acre	10.13	$145.00	$365.45
Oil spray	acre	10.13	64.00	29.62
Kikuyu grass, planting	acre	7.64	325.00	516.23
Fertilizing	acre	20.26	30.00	24.73
Weed control	acre	20.26	30.00	54.29
Watering	acre	101	40.00	65.20

Los Berros Diversion Vegetation

Bids: 9-6-60 Items	Unit	Quantity	Unit Prices 1C	2
Fertilize & seed for seed bed preparation	acre	1.14	145.00	365.48



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CF&I Prestressed Strand and Wire

Just as you'll see other CF&I products in use wherever *quality* is the watchword, so you'll find CF&I Prestressed Strand and Wire at leading plants and construction sites across the nation.

Concrete men know they can count on these prestressing products because they're backed by years of wire-drawing experience . . . made from right analysis steels . . . subjected to rigid quality controls at every stage of production. And, because of CF&I's nation-wide system of plants and sales offices, plants and contractors know they can count on speedy delivery and engineering assistance whenever needed. *Service to the concrete industry* is one of the meanings behind our Corporate Image.

- CF&I Prestressed Concrete Strand — for pretensioning of prestressed concrete structures. Made to ASTM A-416 specifications, this 7-wire strand is stress relieved after stranding to improve its elastic properties and assure uniform, high-tensile strength.
- CF&I Prestressed Concrete Wire — for post-tensioned concrete structures. Made to ASTM A-421, this wire has excellent elastic and uniform mechanical properties. Easy to work with, it will lie flat and straight when uncoiled. Recommended for either Type BA (Button) or Type WA (Wedge) anchorage methods.

Your nearest CF&I office is ready to serve you. Ask for our new series of folders covering steel products for the concrete industry—W-202 (Strand), W-209 (Wire) and WWR-806 (Fabric).

Other CF&I Products for the Prestressed Concrete Industry

CF&I-Clinton Welded Wire Fabric ASTM A-185 • CF&I Concrete Reinforcing Bars and Rods ASTM A-15 • CF&I Wire for Concrete Reinforcement ASTM A-82 • CF&I Hard Drawn Prestressed Concrete Wire ASTM A-227 • CF&I Hard Drawn Prestressed Concrete Wire for Redrawing • Cal-Tie Wire • Wickwire Rope and Slings

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STRAND

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***In the West:* THE COLORADO FUEL AND IRON CORPORATION** — Albuquerque • Amarillo • Billings Boise • Butte • Denver • El Paso • Farmington (N. M.) • Ft. Worth • Houston • Kansas City • Lincoln Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco San Leandro • Seattle • Spokane • Wichita

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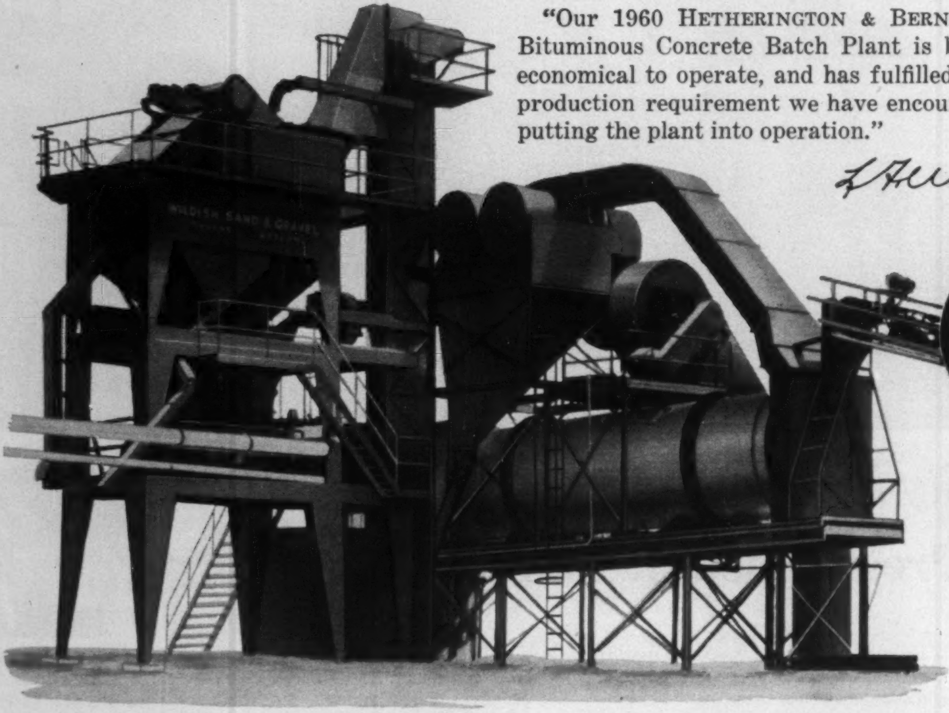
—says LEONARD WILDISH
Wildish Sand & Gravel Co.
Eugene—Springfield, Oregon

"Our 1960 HETHERINGTON & BERNER 6000 lb. Bituminous Concrete Batch Plant is big, rugged, economical to operate, and has fulfilled every high production requirement we have encountered since putting the plant into operation."

L H Wildish



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ESTABLISHED 1867

TYPE "T" 60

MODEL "B"

One of 8 sizes available in tower type plants.

Plant Features Include:

Tunnel Feed System, with Syntron vibrating pan type feeders, and belt conveyors to dryer.

100" dia. x 36' long Dryer, with H & B primary dust collector to exhauster, wet type secondary collector, and H & B-Maxon automatic low pressure gas-oil combustion unit.

Hot Elevator with AARB buckets on SS type chain.

Deister-H & B 3½ deck 5' x 12' Vibrating Screen with oil mist lubrication, vibration dampers, and reversing stop control switch.

60 Ton Hot Bin, 4 compartments, and with high-low level indicators.

H & B Fluidometer System for A/C batch metering.

Automatic Batching, with the Howe Batchplug System.

Air Control of all bin gates, with Quincy compressor permanently mounted in mixing tower framing.

Fugitive Dust Control at screens, batcher, etc., with individual exhauster.

H & B-Viking A/C Pump, jacketed type, with strainer, relief valve, bypass assembly.

Electric Heat Control of A/C tanks and circulating oil for jacketed fittings and accessories—Petroleum Heating Co., Seattle, Washington.

Wiring, Factory installed with control house incorporated into tower support structure.

HETHERINGTON & BERNER INC.
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Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD PER M FT.B.M., CARLOAD LOTS F.O.B.

All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)

	SOUTHERN PINE AND DOUGLAS FIR									LONG LEAF Y. P. Merchantable grade up to 20 ft.		FIR PLYWOOD	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	5/8" Interior plyscored C-D gr.	3/4" Plyform grade*
Atlanta *n*†	**$ 90.00**	**$ 90.00**	**$ 85.00**	**$ 90.00**	**$ 90.00**	**$ 95.00**	**$125.00**	......	......	**$135.00**	**$155.00**	$125.00	$270.00
Baltimore *o*	**95.00**	**95.00**	**101.50**	**99.00**	**105.00**	**105.00**	**124.00**	......	......	**175.00**	**190.00**	175.00	255.00
	116.00g	*120.00g*	*125.00g*	*125.00g*	*125.00g*	*125.00g*	*148.00g*	*$180.00*	*$170.00*	......	......		
Birmingham *n*†*r*	**85.00**	**87.00**	**84.00**	**86.00**	**91.00**	**97.00**	**116.00**	......	......	**120.00**	**173.00**	120.30	204.50
	80.00	*80.00*	*83.00*	*81.00*	*81.00*	*98.00*	*88.00*	*85.00*	*93.00*	......	......		
Boston *ns*	**109.00*f***	**110.00*f***	**112.00*f***	**112.00**	**112.00*f***	**129.00*a***	......	......	......	......	......	165.00*c*	290.00*c*
	113.00	*112.00*	*122.00*	*122.00*	*122.00*	*132.00*	*157.00*	*159.00*	*176.00*				
Chicago **	**108.00**	**111.00**	**105.00**	**119.00**	**127.00**	**128.00**	**123.00**	......	......	**151.00**	**151.00**	147.00	239.00
	109.00	*109.00*	*122.00*	*120.00*	*120.00*	*121.00*	*129.00*	*129.00*	*129.00*	......			
Cincinnati *n**	**96.00**	**96.75**	**91.75**	**92.00**	**97.50**	**105.00**	**112.50**	......	......	**129.25**	**115.50**	85.00*f*	160.00*f*
	99.50	*101.50*	*100.00*	*102.50*	*104.50*	*108.00*	*134.00*	*134.00*	*134.00*				
Cleveland *o***	**98.00**	**100.00**	**102.00**	**98.00**	**102.00**	**110.00**	......	......	......	......	......	114.00*a*	195.00
	......		*118.00*	*110.00*	*115.00*	*118.00*	*145.00*	*145.00*	*145.00*				
Dallas ‡	**95.00*k***	**99.00*k***	**103.00*k***	**103.00*k***	**103.00*k***	**106.00*k***	**135.00**	......	......	**138.00**	**160.00**	112.50*ac*	183.50*ac*
Denver *n**	*Not in stock*		*118.00*	*118.00*	*118.00*	*120.00*	*177.00*	*197.00*	*197.00*	......	......	146.50*a*	233.00*a*
Detroit ‡	**140.00**	**142.50**	**142.00**	**138.00**	**145.00**	**145.00**	......	......	......	**153.50**	......	115.50*gca*	194.50*gca*
	132.25	*132.25*	*143.25*	*141.50*	*150.00*	*155.50*	*194.00*	*211.00*	*211.00*	......	......		
Kansas City *tn*	**120.00**	**120.00**	**120.00**	**125.00**	**128.00**	**150.00**	......	......	......	......	......	135.00*a*	215.00*a*
	120.00	*120.00*	*120.00*	*125.00*	*128.00*	*132.00*	*165.00*	*225.00*	*225.00*	......	......		
Los Angeles *xnu*	*88.00*	*88.00*	*88.00*	*88.00*	*88.00*	*88.00*	*130.00*	*140.00*	*140.00*	......	......	110.00	210.00
Minneapolis *ov*	*140.00*	*140.00*	*140.00*	*140.00*	*140.00*	*140.00*	*185.00*	*185.00*	*185.00*	......	......	195.00	305.00
Montreal **bp*	**83.00*a***	**89.00*a***	**83.00*a***	**83.00*a***	**99.00*a***	**125.00*a***	......	......	......	**120.00**	**120.00**	119.25	225.95
	160.00	*160.00*	*160.00*	*160.00*	*160.00*	*160.00*	*168.00*	*170.00*	*170.00*				
New Orleans †*n*	**89.00**	**89.00**	**90.00**	**95.00**	**95.00**	**98.00**	**126.00**	......	......	**160.00**	**155.00**	119.00	200.71
	99.00	*99.00*	*98.00*	*101.00*	*101.00*	*101.50*	*117.50*	*111.00*	*111.00*	......	......		
New York	**115.00**	**117.50**	**130.00**	**130.00**	**130.00**	**130.00**	**225.00*aa***	......	......	**250.00*z***	**250.00*z***	110.70	190.60
	......	......	*122.25*	*125.00*	*125.00*	*127.50*	*169.00*	*169.00*	*169.00*	......	......		
Philadelphia *nt*	**105.00**	**105.00**	**95.00**	**105.00**	**125.00**	**110.00**	**125.00**	......	......	......	......	130.00*ha*	212.00*ha*
	......	......	*117.00*	*120.00*	*120.00*	*125.00*	*142.50*	*145.00*	......	......	......		
Pittsburgh *st*	**135.00**	**135.00**	**135.00**	**135.00**	**140.00**	**140.00**	**165.00**	......	......	**145.00**	**185.00**	225.00*a*	295.00*a*
	135.00	*115.00*	*145.00*	*150.00*	*150.00*	*150.00*	*225.00*	*225.00*	*225.00*	......	......		
St. Louis ‡*ln*	**111.00**	**113.00**	**121.00*d***	**121.00*d***	**121.00*e***	**120.00*e***	......	......	......	......	......	144.00*ach*	244.00*ach*
	......	......	*129.00*	*129.00e*	*129.00e*	*129.00e*	*183.00e*	*183.00e*	*183.00*	......	......		
San Francisco *nx*	*66.00*	*66.00*	*79.00*	*79.00*	*79.00*	*79.00*	*87.00*	*108.00*	*109.00*	......	......	82–84.00*h*	160.00*j*
Seattle *n*†	*54.00*	*57.00*	*67.00*	*67.00*	*67.00*	*68.00*	*81.50*	*86.50*	*86.50*	......	......	105.00*aeg*	190.00*aeg*
Toronto *	**84.00*a***	**88.00*a***	**80.00*a***	**79.00*a***	**83.00**	**82.00*a***	**95.00*a***	......	......	**84.00*a***	......	216.00	216.00
	89.00	*92.00*	*100.00*	*100.00*	*103.00*	*104.00*	*118.00*	......	......	......	......		

† F. o. b. mill. * F. o. b. city, CL, out of yard. ** F. o. b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL.

LUMBER: Bold Face Type, Southern Pine. italics Douglas Fir. *a Spruce. *b Federal tax exempt, add 6% mun. & prov. tax. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *f Hemlock *g No. 1 common. *j 8 ft. lengths. *k No. 3 common. *l Add 2% sales tax. *n Less 2% disc. 10 days. *o Less 2% disc. 10th. *p Less 1% disc. 10 days. *q fir: $80.25 in truck lots, fob job or CL, f.o.b. city. *r For f.o.b. city price add $8 for pine, $38 for fir off. 1/1/58. *s asd trucklots. *t trucklots del. *u Retail LCL yard. *v Retail LCL, del. *w add 6% mun. & Prov. tax. *x add 4% sales tax. *z Hondouras Pine. *aa Domestic long leaf

* PLYWOOD (Plyform, oiled and edge sealed): Douglas fir, 4' x 8' panels, 5-ply sanded 2 sides, carloads lots, delivered per 1000 sq. ft. surface. Seattle base price, Exterior, waterproof, 5/8". $135.00: 3/4". $155.00. *a Delivered. *c Truck lots. *d A-C exterior. *e LCL. *f less 1%, 5 days. *g less 2% for cash. *h less 2% disc, 10 days *i add 2% sales tax. *j f.o.b. mill

GLASS, EXPLOSIVES, CHEMICALS, PILES, TIES

	WINDOW GLASS Discounts from jobber: list, Feb. 1, 1950a Single or Double Strength		EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 500 lb. lots
	A quality	B quality	
Atlanta	78%	80%*d*	$0.2595
Baltimore	74%*b*	74%*b*	.2795
Birmingham	82%*c*	82%*c*	.2595
Boston	72+10%*eg*	72+10%*eg*	.2795
Chicago	72%	72%	.2795
Cincinnati	74%	74%	.2595
Cleveland	74-2-10%	74-2-10%	.2595
Dallas	76%	76%	.2870
Denver	73.5%	73.5%	.2795
Detroit	72-10-10%	72-10-10%	.2795
Kansas City	76-10-10%	76-10-10%	.2795
Los Angeles	$12.88/17.32	$10.45/14.13	.2795
Minneapolis	70-10%	70-10%	.2795
Montreal	40-10-5%*a*	40-10-5%*a*	23.20*h*
New Orleans	76%*d*	76%*d*	.2795
New York	79%	79%	.5130*g*
Philadelphia	80%	80%	.2795
Pittsburgh	72%	72%	.2595
St. Louis	72-10-10%*ef*	72-10-10%*ef*	.2795
San Francisco	60%	73%	.2795
Seattle	$8.85/11.55*di*	$6.41/8.67*di*	.2795
Toronto	$6.49/9.57	$5.90/8.70	

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: Jobber's list price per box of 50 sq. ft., 20 x 20 in. ss, $42.75 for A quality, $37.50 for B quality; 20 x 20 in., ds, $60.00 for A quality, $52.75 for B quality. *a sales tax extra. *b discount from 6/15/52 list. *c single strength; 83% for double strength. *d discount from 8/1/58 list. *e less 2%/10 days. *f add 2% sales tax. *g less 1%/cash. *h less 2%/cash. *i 20 boxes min.

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. *g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. *h F.o.b. Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60%, $24.30 In fiber cases: forcite 40%, $24.05; forcite 60%, $25.80.

40% Ammonia Gelatin price ranges in other than urban areas, per lb: (except Seismograph Grades)

	C/L 300,000 lb.lots	10,000 lb.lots	2,000 lb.lots	200 lb.lots
Group 1*	$0.2095	$0.2195	$0.2545	$0.2695
Group 2†	.2170	.2270	.2620	.2770

*All areas except those in Group 2 and N.J. cities of Bayonne, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucie and south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman, McCulloch, San Saba, Burnet, Williamson Milan Robertson Leon Houston Angelina, Nacogdoches, Shelby and south thereof.

PILES

Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine under fifty feet based on freight from mid-South, over fifty feet, on freight from deep South.

			By Rail	
Dimensions	Points	Length	Pine*§	Fir
12" at butt	6-in.	30 to 39-ft.	$0.42*a*	....
12"—2-ft. from butt	6-in.	40 to 44-ft.	.91	....
12"—2-ft. from butt	6-in.	45 to 49-ft.	.97	....
12"—2-ft. from butt	6-in.	50 to 54-ft.	1.01	....
12"—2-ft. from butt	6-in.	55 to 59-ft.	1.07	....
14"—2-ft. from butt	6-in.	60 to 64-ft.	1.14	....
14"—2-ft. from butt	6-in.	65 to 69-ft.	1.21	....
14"—2-ft. from butt	6-in.	70 to 74-ft.	1.34	$1.40
14"—2-ft. from butt	6-in.	75 to 79-ft.	1.41	1.40
14"—2-ft. from butt	5-in.	80 to 84-ft.	1.54	1.45
14"—2-ft. from butt	5-in.	85 to 89-ft.	1.67	1.54

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B
* a, trucked in from N. J.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:		6" x 8" x 8'		7" x 8" x 8'6"	
		Untr.	Tr.	Untr.	Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	2.85-3.00	4.00*a*-4.10	3.90	4.75-5.00
New York	Mixed Hardwood	3.45	5.10	4.30	6.50
	Mixed Oak	3.55	5.20	4.40	6.60
Philadelphia	Mixed Oak	3.80	3.97	4.37	4.57
St. Louis	Mixed Oak	2.65	3.50*a*	3.00*h*	4.00-4.10*ah*
San Francisco	Douglas Fir	1.90*ef*	3.05*ef*	2.20*ef*	3.10*ca*

Tr.—Treated; Untr.—Untreated. *a*Creosoted. *c* Empty cell. *e* Green *f* f.o.b. cars. *g* 7 x 9 x 8'6" * Add 75¢/tie freight charge to Birmingham. **h* 7" x 9" x 8½. *i Mixed Hardwood

CHEMICALS

Water, sewage treatment, road work, carlots, f.o.b. works

Chlorine cylinders, liquid, per lb. freight allowed, N.Y. State	$ .11
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, ton	32.00
Silicate of soda, 52 deg., in drums, per 100 lb.	2.65
Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags	2.05
Sulphate of copper in bags, 99% per 100 lb., reg., 25.2% copper content	13.00

See following ENR issues for OTHER PRICES:

- Clay Products, Lime, Plaster, Paint, Roofing: Last, Jan. 26; Next, Mar. 2.
- Wage Rates, Building Board, Lath. Insulatoin; Last Feb. 2; Next, Mar. 2.
- Cement Aggregate, Ready-Mixed Concrete; Asphalt; Last, Feb. 9; Next, Mar. 9.
- Iron & Steel Products, Pipe: Last, Feb. 16; Next, Mar. 16.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲ **Mass., East Boston**—BA 2/28—Massachusetts Port Auth., 141 Milk St., Boston, **MPA-1.009 HANGAR,** Logan Airport. $3,000,000. Plans deposit $50. Extended date. W Chester Browne & Assoc., 122 Arlington St., Boston, archts. Joseph A. Rasys, 15 Wendover St., Dorchester, structural engr. Trans-World Airlines, lessee. CD 1/24/61.

▲† **Rhode Island**—BA 4/11—U. S. Eng., 187 Westminster St., Providence, Fox Point HURRICANE BARRIER, (1) river excavation (2) rock-faced embankment, dikes (3) cofferdams (4) driving steel bearing, steel sheet, round timber, cast-in-place con., and wood sheet cut-off piling (5) con. strs., incl. pumping station substructure, river barriers and river gate structure (6) pumping station, steel framed brick, masonry superstructure and accessories (7) installation of govt. furnished equipment, incl. five 120 in. pumps and motors, load center, switchgear, and transformers (8) river gate sect. with 3-25 x 40 ft. training gates (9) two cooling water gates (10) vehicular street gates, ENG-19-017-61-23, $9,000,000. CD 2/8/61.

BUILDINGS—BA

▲ **Me., Lewiston**—BA 3/8—City, Controller, City Hall, JUNIOR HIGH SCHOOL, East Ave. and Montello St. $1,500,000. Plans deposit $40. Alonzo J. Harriman, Inc., 292 Court St., Auburn, archt. CD 5/26/60.

▲ **Conn., Norwalk**—BA 3/10—Norwalk Hospital, 24 Stevens St., (selected list of bidders), HOSPITAL ADDN., Stevens St. $3,500,000. York & Sawyer, Kiff, Colean, Voss & Souder, 101 Park Ave., New York, N. Y., archts. Edward H. Hjorth, 67 W 44 St., New York, N. Y., consult. engr. Meyer, Strong & Jones, 230 Park Ave., New York, N. Y., mech. engrs. CD 8/17/61.

BUILDINGS—LB & CA

▲ **Rosendahl Corp.,** 100 Bush St., San Francisco, Calif., CA Est. **$5,000,000,** nitrogen and argon GAS PLANT addn. and DISTRIBUTION PLANT, ACTON, MASS. Air Reduction Co., 150 E. 42 St., New York, N. Y. CD 10/5/60.

▲ **Consolidated Constructors, Inc.,** 21 E. 40 St., New York, N. Y., CA **$1,341,000,** MEDICAL WING addn., BURLINGTON, VT. University of Vermont, Treasurer's Office, Burlington, Vt. BA 12/21/60, CA 2/8/61. CD 1/26/61, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. Y., Rochester**—BA 3/1—Monroe County Water Auth., 339 East Ave., Contr. 1, Lake Ontario WATER INTAKE. $2,000,000. Plans deposit $25. Metcalf & Eddy, Statler Bldg., Boston, Mass., engrs.

BUILDINGS—BA

▲ **N. J., Jersey City**—BA 3/9—State Dpt. Purchase & Property, Treasurer's Office, State House, Trenton, ARTS and SCIENCE, State College. $1,500,000. Ketchum & Sharp, P.O. Box 272, Somerville, archts. CD 10/6/60.

▲ **Pa., Scranton**—BA 3/15—Our Lady of Abington, c/o Stickle & Assoc., archts., 2422 Prospect Ave., Cleveland, Zone 15, O., (selected list of bidders), SEMINARY, $6,000,000. (selected list of bidders). CD 12/28/60.

HEAVY CONSTRUCTION—LB & CA

▲ **Elmhurst Contracting, Div. of John Hagan & Son Co.,** 53-09 97 Pl., Corona, N. Y., CA **$7,347,772** DAM, Spruce Run Reservoir, Clinton and Flemington, Hunterdon Co., NEW JERSEY. New Jersey Dpt. Conservation & Economic Development, First Floor, 205 West State St., Trenton, N. J. BA 1/24, CA 2/10. CD 1/30/61, under LB.

BUILDINGS—LB & CA

▲ **Depot Constr. Corp.,** 42-15 Crescent St., Long Island City 1, N. Y., LB **$2,173,000,** (9 bidders), general contract STATE OFFICE BLDG. 7, Department Public Works, Campus Site, ALBANY, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. BA 2/8, CD 2/7/61.

▲ **Lyras-Adams, Ltd.,** 111 E. 38th St., New York, N. Y., CA Est. **$2,500,000,** 16 story, penthouse APARTMENT, SEC. E. 65th St. and Madison Ave., NEW YORK, N. Y. Owner, c/o Lyras, Galvin & Anaya, archts., 111 E. 38th. St., New York, 16, N. Y., archts.

▲ **London Terrace, Inc.,** 410 W.24 St., New York 11, N. Y., Owner Builds, **$1,540,000,** 16 story, 244 unit APARTMENT, Victory Blvd. between Eddy St. and Theresa Pl., ST. GEORGE, N. Y. CD 2/9/61.

▲ **Wilputte Coke Oven Div., Allied Chemical Corp.,** 61 Broadway, New York, N. Y., CA 60 by-product COKE OVENS, Niagara Road Plant, TONAWANDA, N. Y. Semet-Solvay Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

▲ **Tishm Realty & Constr. Co.,** 666 5 Ave., New York 1, N. Y., CA **$15,000,000,** First Section, two 14 story APARTMENTS, Hudson River, Palisades Section, Bergen Co., FORT LEE, N. J. Horizon House, Inc. 666 5 Ave., New York 19, N. Y. CD 1/26/61.

▲ **Leimbach Constr. Co.,** 3906 Hickory Ave., Baltimore 11, Md., CA **$1,997,000,** HOSPITAL ADDN., NURSES HOME ADDN., BALTIMORE, MD. Maryland General Hospital, Linden Ave. and Madison St., Baltimore, Md. CA 2/2. CD 1/25/61, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Florida**—BA About 3/15—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 1, Constructing CANAL 43, Section 1, Caloosahatchee River, Central and Southern Florida Flood Control Project, CIVENG-08-123-61-56. Approx $3,000,000. CD 9/21/60.

▲† **Louisiana**—BA 3/15—U. S. Eng., foot of Prytania St., New Orleans, 60,000 tons STONE CAPPING on existing riprap dike, Mississippi River-Gulf Outlet, Chandeleur Sound, Stone Dike north of Channel; CIVENG-16-047-61-126. $1,500,000. Plans deposit $1. CD 9/20/60.

BUILDINGS—SLC

▲ **Ga., Dalton**—W. I. Manton & Wallace M. Bryant, soon lets contract 138,000 sq. ft. SHOPPING CENTER, 750-car paved parking lot. $2,000,000. Johnson & Tippett, 1801 Peachtree Rd. N. E., Atlanta, archts. CD 2/16/59.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Hys., 1221 E. Broad, Richmond, Bids opened Feb. 8, ROADS,

Va.—**Ames & Webb, Inc.,** 3145 Virginia Beach Blvd., Norfolk, Va., LB **$634,935,** (5 bidders), grading, drainage, paving Air Line Blvd. on Rte. 58, Proj. 0058-124-101, C501, Norfolk Co.; LB **$1,315,943,** (4 bidders), grading, paving on Rte. 599, Proj. 599-122-101, C501, Norfolk Co.;

Va.—**Atlantic Bitulithic Co.,** 1400 Rosenth Rd., Richmond, Va., LB **$2,510,666,** (13 bidders), grading, drainage, paving on Rte. 95, Proj. 000095-043-101, P402; 0095-042-101, P401, Henrico and Hanover Counties;

Va.—**Walder & Flournoy, Inc.,** 5010 Waller Rd., Richmond, Va., LB **$513,761,** (5 bidders), grading, drainage, paving from Rte. 20 to Avon St., incl. overpass and approaches C & O RR; and on Rte. 250, Water, Main and 9th Sts., Rtes. 20 and 250, Proj. 0020 104-070, C501, B601; 0250-104-070, C501, Albemarle Co.;

Va.—**English Constr. Co., Inc.,** Altavista, Va., LB **$565,298,** grading, drainage, paving Rte. 501, incl. bridge over Childrey Creek, Proj. 0501-041-102, C502, B602, 104, C501, Halifax Co. CD 1/3/61.

▲ **Wright Contg. Co.,** P.O. Box 1580, Columbus, Ga., CA **$1,917,809,** VIADUCT between Marietta and Nelson Sts., ATLANTA, GA. City, City Hall, Atlanta, Ga. BA 1/23/61. CD 1/26/61, under LB.

▲ **LOUISIANA**—State Dpt. Hys., Rm. 426, Headquarters Admin. Bldg., Baton Rouge, ROAD,

W. R. **Aldrich & Co.,** 2493 Baywood, Baton Rouge, La., CA **$3,814,406,** c. conc. pavt., grade separation structures 5.606 mi. Lake Charles-Welsh Hy. US 171-east of Chloe, Rte. I-10 SP No. 450-02-05 FAP No. I-10-1(24)33, Calcasieu Parish. BA 1/25, CA 2/3. CD 1/30/61, under LB.

▲ **KENTUCKY**—Commonwealth Ky., Dpt. Hys., Frankfort, ROADS,

Ky.—**Greer Bros. & Young, Inc.,** N. Main St., London, Ky., CA **$1,451,353,** grade, drain 3.049 mi. Covington-Tennessee State Line, I 75-6(7) 135, Scott Co.;

Ky.—**R. B. Tyler Co.,** 1446 Levering St., Louisville 8, Ky., CA **$863,324,** grade, drain, c. conc. pavt. 2.169 mi. Grand Ave. in Newport, US 19(5) SP 19-871, Campbell Co. BA 2/3. CA 2/7. CD 2/7/61, under LB.

BUILDINGS—LB & CA

▲ **Capital Constr. Co.,** 1105 Marboro St., Raleigh, N. C., Owner Builds, **$1,350,000,** 162 RESIDENCES, Rollingwood Subdivision, RALEIGH, N. C. Kenneth Scott, 213½ W. Main St., Durham, N. C., archt.

▲ **J. A. Jones Constr. Co.,** P.O. Box 13247, Station K, Atlanta, Ga., LB **$1,936,800,** MOTOR HOTEL, ATLANTA, GA. Atlanta Americana Motor Hotel, c/o Dr. Marvin Goldstein, 950 W. Peachtree St. N.W., Atlanta, Ga. BA 2/8/61. CD 2/6/61.

▲ **Frank J. Rooney, Inc.,** 405 S. Dale Mabry Hy., Tampa, Fla., CA Est. **$2,000,000,** MOTOR HOTEL, swimming pool, TAMPA, FLA. Tampa International Inn, c/o Morris Lapidus, Harle & Liebman, archts., 940 Lincoln Rd., Miami Beach, Fla. BA 1/10/61. CD 1/6/61.

▲† **American Bridge Co.,** 700 N. 39th St., Birmingham, Ala., CA **$2,119,447,** (9 bidders), furnish 8.185 tons STRUCTURAL STEEL for powerhouse at Widow's Creek Steam Plant, ALABAMA. Tennessee Valley Authority, New Sprankles Bldg., Knoxville, Tenn. CD 10/7/57.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲† **Michigan and Ontario**—BA 3/14—U. S Eng., 1101 Washington Blvd., Detroit 26, Mich., DREDGING 100,000 cu. yd. clay, gravel, rock and combinations, Course L, Bayfield Channel, St. Mary's River, Sault Ste. Marie, Chippewa Co., Mich., CIVENG-20-064-61-39. Under $2,000,000. Plans deposit $1. CD 2/7/61.

BUILDINGS—BA

▲ **O., Oregon (Br. Toledo)**—BA 3/14—Bd. Educ., 5721 Seaman Rd., Toledo, Zone 5, Eisenhower JUNIOR HIGH SCHOOL, gymnasium, cafeteria and shop, N. Curtice Rd. $2,000,000. Bellman, Gillett & Richards, 1600 Madison Ave., Toledo, archts. CD 11/11/59, under O., Toledo.

▲ **O., Youngstown** — BA 3/22 — Bd. Comrs. Mahoning Co., Courthouse, COUNTY HOME. $2,000,000. Frank Smith & Assocs., Schween-Wagner Bldg., archts. CD 11/10/59.

▲ **Wis., Milwaukee**—BA 3/29—Wisconsin State Public Building Corp., State Capitol, Madison, 114,620 sq. ft. rein.-con., brick STATE OFFICE. $6,800,000. Plans deposit $100. Grellinger, Rose & Assocs., 757 N. Broadway, Milwaukee, archts. R. D. Culbertston, state engr. CD 7/30/59.

HEAVY CONSTRUCTION—LB & CA

▲ **Kenny Constr. Co.,** 3220 Oakton Ave., Skokie, Ill., LB **$1,529,500,** est. $1,800,000, RB 33, No. 80.85-60-130, Phase 2, UTILITIES, O'Hare Airport, Park Ridge, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. BA 2/7/61. CD 1/23/61.

BUILDINGS—LB & CA

▲ **Hunkin-Conkey Constr. Co.,** 1740 E. 12th St., Cleveland 14, O., CA **$2,522,000,** Proj. OH 3-17A, Springbrook APARTMENTS, north side Hough Ave., east side Ansel Rd., CLEVELAND, O. Cleveland Metropolitan Housing Auth., 1325 W. 28th St., Cleveland 13, O. BA 12/21/60. CA 2/3/61. CD 12/29/60, under LB.

▲ **Joy Mfg. Co., Western Precipitation Div.,** 1000 W. 9th St., Los Angeles, Calif., CA Est. **$2,000,000,** three PRECIPITATORS to control air pollution due to conversion of furnaces to oxygen process, CLEVELAND, O. Republic Steel Corp., Republic Bldg., Cleveland 15, O. CD 3/16/60.

▲ **Jerry Mason Constr. Co., Inc.,** 153 N. Meramec Ave., Clayton 5, Mo., CA Est. **$2,000,000,** 2 story APARTMENTS, 1 story OFFICE, SWIMMING POOL, 700 block Washington Ave., ALTON, ILL. Washington Ave. Development Corp., 153 N. Meramec Ave., Clayton 5, Mo. CA 12/27/60. CD 6/29/60.

▲ **Siesel Constr. Co.,** 514 E. Ogden Ave., Milwaukee, Wis. CA Est. **$5,500,000,** 3 and 6 story, 170 x

(Continued on page 68)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

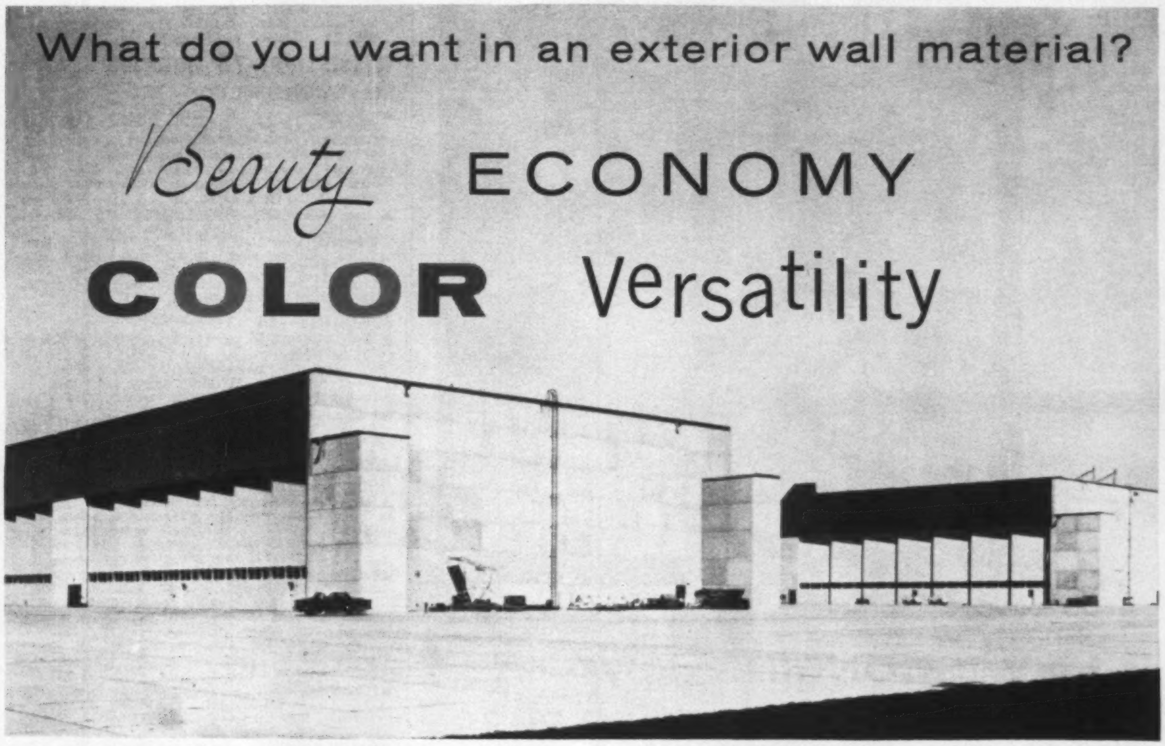
CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.



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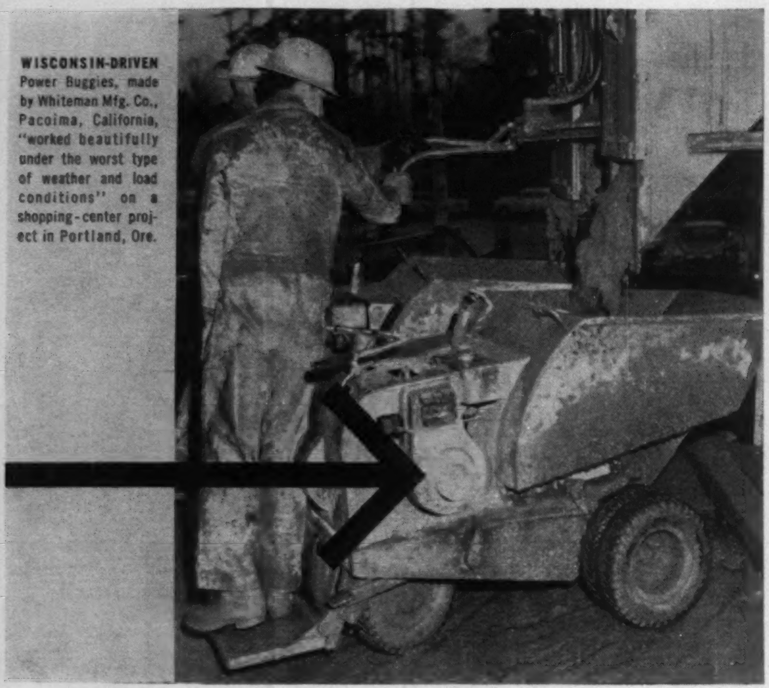

WISCONSIN-DRIVEN Power Buggies, made by Whiteman Mfg. Co., Pacoima, California, "worked beautifully under the worst type of weather and load conditions" on a shopping-center project in Portland, Ore.

7-hp WISCONSINS defy foul weather and grueling pace

Hauling concrete under miserable winter conditions calls for truly rugged engines, like the single-cylinder Wisconsins on the Power Buggies shown above. The engines worked so well that the customer added several new Buggies to the fleet of 14 he used to keep this $21,000,000 shopping center project on schedule.

The 7-hp BKN Wisconsins are precision-built to stand up under the grueling power demands of tough, dirty jobs like this. Their high torque eases heavy loads into top speed — and moves them through mire and up grades without stalling the engines or work progress.

The BKN's slash upkeep. Thrust-absorbing tapered roller bearings on the forged-steel crankshaft virtually eliminate bearing failure. The high-tension magneto is weather-sealed — and is mounted outside for fast, easy access and servicing.

You'll be money ahead with equipment that is powered by heavy-duty Wisconsin Engines, 3 to 56 hp. Get Bulletin S-254. Write Dept. C-11.

WISCONSIN MOTOR CORPORATION
MILWAUKEE 46, WISCONSIN
World's Largest Builders of Heavy-Duty Air-Cooled Engines

ELGOOD
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Capacities to
600 Tons—48" Travel

Jacking Equipment for
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Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation

(Continued from page 66)

201 ft. OFFICE addn., MILWAUKEE, WIS. The Milwaukee Journal, 333 W. State St., Milwaukee, Wis. BA 1/31/60. CD 12/28/60.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Kansas**—BA On Or About 3/14—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, LEVEE EMBANKMENT, PUMPING PLANTS, DRAINAGE STRUCTURES, incl. clearing and grubbing, placement of stone slope protection, etc., Kansas River, Manhattan, CIVENG 23-028-61-59. $1,500,000. Plans deposit $10. CD 9/20/60.

▲ **Iowa, Sioux City**—BA 4/10—City, City Hall, (a) SEWAGE LIFT STATION, Floyd River and Perry Creek, (b) three INTERCEPTOR SEWER LINES leading to treatment plant. $2,462,000. Extended date. Buell & Winter, Insurance Exchange Bldg., Sioux City, and Howard R. Green Co., Green Engineering Bldg., Cedar Rapids, engrs. CD 1/31/61.

BUILDINGS—BA

▲ **Tex., Fort Worth**—BA 3/7—Sears, Roebuck & Co., 925 S. Homan, Chicago, Ill., 1 story, 1,000,000 sq. ft., brick, tile, concrete steel, Seminary South Regional SHOPPING CENTER, $8,000,000. Geo. L. Dahl, 2101 N. St. Paul, Dallas, archts. CD 2/1/61.

▲† **Okla., Fort Sill**—BA About 3/15—U. S. Eng., Box 61, Tulsa, ten BACHELOR OFFICERS QUARTERS, ENG-34-066-61-45. $2,500,000. Plans deposit $10. CD 9/25/59.

HEAVY CONSTRUCTION—LB & CA

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, BRIDGE. **R. B. Potashnick**, P. O. Box 423, Cape Girardeau, Mo., CA **$3,164,134**, 15 cont. plate girders, 4 cont. I-beams, Sta. 260 plus 07, Jackson Co. BA 1/20, CA 1/28. CD 2/2/61, under LB.

▲† **Commonwealth Electric Co.**, 1910 Y St., Lincoln, Neb., CA **$3,096,520**, Missouri River Basin Proj., South Dakota and Iowa, second CIRCUIT ADDNS., Fort Thompson, Huron, Watertown, Fort Randall, Sioux City, Spec. DS-5454, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior Bldg. 1A, Denver Federal Center, Denver, Colo. BA 1/12/61. CD 1/17/61, under LB.

▲† **Bushman Constr. Co.**, Schneider Bldg., Saint Joseph, Mo., LB **$1,935,853**, est. $2,094,248, (1 bidder), Missouri River Basin Proj., EARTHWORK STRUCTURES, for Farwell Main Canal, Loup Oity, SC 5467, NEBRASKA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. BA 2/9/61. CD 1/4/61.

▲† **J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan. LB **$1,750,011**, SCHEDULE 1, relocating OKLAHOMA HY. NO. 9, CANADIAN RIVER SECTION, grading and bridge, Eufaula Reservoir, Canadian River, CIVENG-34-066-61-52, OKLAHOMA, U. S. Eng., Box 61, Tulsa, Okla. BA 2/9, CD 1/5/61. **L. & A. Contracting Co.**, Hy. 49 N. Bypass, Hattiesburg, Miss. LB **$521,685**, SCHEDULE 2, relocating OKLAHOMA HY. NO. 9, CANADIAN RIVER SECTION, grading and bridge, Eufaula Reservoir, Canadian River, CIVENG-34-066-61-52 (Oklahoma).

† **Perry Electric Co.**, Box 1717, Vernon, Tex., CA **$2,000**, ELECTRICAL SYSTEM IMPRVS., Altus Air Force Base, ENG-34-066-61-34, ALTUS, OKLA. U. S. Eng., Box 61, Tulsa, 2, Okla. BA About 1/19/61. **(Correction—cost).** CD 2/1/61.

BUILDINGS—LB & CA

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex., CA **$4,500,000**, CHEMICAL PLANT for producing butylene glycol, polyformaldehyde, BISHOP, TEX. Celanese Corp. of America, Prudential Bldg., Houston, Tex. CD 10/26/60.

▲ **Badger Mfg. Co.**, 230 Bent St., Cambridge, Mass., CA **$4,600,000**, design and constr. 30 mil. lb. annually ethylbenzine PLANT, CORPUS CHRISTI, TEX. Suntide Refining Co., 907 S. Detroit St. and Viola Rd., Corpus Christi, Tex. CD 11/11/60.

▲ **Krist Hubert, Builder-Developer**, c/o Hubert Lumber Co., 5104 Elm St., Houston, Tex., Owner Builds, **$2,000,000**, 125 DWELLINGS, S.W. Houston, HOUSTON, TEX.

▲ **M. W. Kellogg Co.**, 711 3rd Ave., New York, N. Y., CA **$5,950,000**, 50 m.g. aromatics CHEMICAL PLANT, warehousing or storage, grounds grading, development and plant fdn., waterworks system, NEDERLAND, TEX. Atlantic Refining Co., Houston Club Bldg., and Pure Oil Co., 1st City Natl. Bank Bldg., Houston, Tex. CD 2/1/61.

▲ **C. L. Castor, Developer**, 10308 Dyer St., El Paso, Tex., Owner Builds, **$1,750,000**, 140 DWELLINGS, PORT ARANSAS, TEX. CD 1/11/61.

▲ **The Fluor Corp.**, Houston Club Bldg., Port Arthur, Tex., CA **$2,000,000**, design and construct KEROSENE HYDROTREATER PLANT, 12,000 bbl. cap., PORT ARTHUR, TEX. Texaco, Inc., 401 W. 19th St., Port Arthur, Tex. CD 12/8/60.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **California**—BA 3/15—San Benito County Water Conservation & Flood Control Dist., 3220 Southside Rd., Hollister, 120 ft. high, 1,400 ft. long Hernandes DAM, 18,000 acre storage, earthfill, concrete chute spillway, near Hollister, San Benito Co., PL. 984. $1,675,000. Plans deposit $20. Creegan & D'Angelo, 1045 W. Taylor, San Jose, engrs. CD 10/5/59.

▲ **Calif., Santa Ana**—BA 3/15—Orange County Flood Control Dist., Court House Annex, Villa Park EARTH FILL DAM, Santiago Creek near Orange City. $2,000,000. CD 7/3/56.

BUILDINGS—BA

▲ **Calif., Los Angeles**—BA 3/29—Bd. Supervs. Los Angeles County, Hall of Records, Women's DETENTION FACILITY at Biscaluiz Center, Monterey Park, $5,196,900; DETENTION EQUIPMENT, $576,700. CD 7/17/57.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 2/8, ROAD,

Wunderlich Co., P. O. Box 359, Palo Alto, Calif., LB **$4,335,105** grading, paving to constr. 4 mi. 6 lane freeway, US Hy. 40 between 1 mi. south and 3 mi. north State Sign Rte. 48 northeast of Vallejo, Solano Co. CD 12/28/60.

▲ **Morrison-Knudsen Co., Inc.**, Hoge Bldg., Seattle, Wash., CA **$2,186,789** TUNNEL grading, paving to Oregon Mountain Tunnel, U. S. Hy. 199, Hazelview Summit Del Norte Co., CALIFORNIA. State Div. Hys., 1120 N St., Sacramento, Calif. BA 2/1. CD 2/3/61, under LB.

BUILDINGS—LB & CA

▲ **Gilbert & Dolan Constr. Co.**, 4747 N. 16th St., Phoenix, Ariz., LB **$1,638,990**, (4 bidders), Coronado HIGH SCHOOL ADDN., 74th and Oak St., SCOTTSDALE, ARIZ. Scottsdale School Dist. Bd., 4505 E. Osborn Rd., Scottsdale, Ariz.

▲ **P. N. Carlson**, 903 Broadway, Seattle, Wash., CA Est. **$1,800,000**, 3 story, rein.-con. MOTEL, 3 story RESTAURANT on 180x527 ft. rein.-con. pier, extending into Elliott Bay, SEATTLE, WASH. Pier 67, Inc., c/o Sommers-McAllister Properties, 330 35th Ave. N., Seattle, Wash. J. Graham & Co., 1425 5th Ave., Seattle, Wash., archt.

▲ **The Wilder Co.**, P.O. Box 876, Rancho Shopping Center, Los Altos, Calif., CA **$2,000,000**, Rancho del Mar SHOPPING CENTER, APTOS, CALIF. James Fenton, Rio del Mar, c/o contractor. Harold Bakke, 1742 El Camino Real, Mountain View, Calif., archt.

▲ **Allen H. Rabin**, c/o D. L. Dworsky, archt., 469 S. Robertson Blvd., Beverly Hills, Calif., Owner Builds, **$2,500,000**, 7 story, 104,000 sq. ft. AEROSPACE CENTER OFFICE, roof top heliport and auxiliary ground heliport, 650 Sepulveda Blvd., EL SEGUNDO, CALIF. T. H. Jaehn, 3214 Glenhurst Ave., Los Angeles, Calif., structural engr.

▲† **Main Cornice Works**, 7219 W. Beverly Blvd., Los Angeles, Calif., CA **$2,152,600**, convert Wherry Housing to PUBLIC QUARTERS, Naval Station, Spec. 19562, SAN DIEGO, CALIF. 11th Naval Dist. P. Wks., 1220 Pacific Hy., San Diego 1, Calif. BA 1/13, CA 2/6. CD 1/17/61, under LB.

▲† **Jen-Mar Constr. Co.**, 737 France Ave. North, Minneapolis, Minn., CA **$2,261,150**, convert Wherry Housing to PUBLIC QUARTERS, Cabrillo Heights, Spec. 19563, SAN DIEGO, CALIF. 11th Naval Dist. P. Wks., 1220 Pacific Hy., San Diego 1, Calif. BA 1/17, CA 2/6. CD 1/31/61, under LB.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Ont., Sudbury**—BA 3/1—Ontario Water Resources Comn., 801 Bay St., Toronto, SANITARY TRUNK SEWER PROJECT, incl. sinking six shafts approx. 75 ft. deep, approx. 26,000 ft. tunnel and subheadings, underground chamber all in rock, three interceptor sewers to be excavated in overburden. $2,000,000. R. K. Kilborn & Assocs., 36 Park Lawn Rd., Toronto, Zone 18, engrs.

▲ **Que., Pointe Noire**—BA 2/28—Dominion Dock Co., sub. Wabush Iron Co., Ltd., 1010 St. Catherine St. W., Montreal, IRON ORE TERMINAL, $12,000,000. Akers, Ellis Stevenson & Quinn, 233 Broadway, New York, N. Y., U. S. A. engrs. CD 2/8/61.

▲ **Que., Pointe Noire**—BA 3/6—Arnaud Railroad Co., subsidiary of Wabush Iron Co., Ltd., 1010 St. Catherine St. W., Montreal, 20 mi. RAILROAD to join the Iron Ore Companys Schefferville-Sept Iles line, $3,000,000. C. D. Howe Co., Ltd., 1421 Atwater Ave., Montreal, engr. CD 2/8/61.

BUILDINGS—LB & CA

▲ **Toronto Industrial Leaseholds (1957) Ltd.**, 12 Sheppard St., Toronto, Ont., Owner Builds, **$5,000,000** SHOPPING CENTRE, east end of city, KITCHENER, ONT. Bregman & Hamann. 146 Bloor St. W., Toronto, Ont., archt.

▲ **Perini Ltd.**, 49 Jackes Ave., Toronto, Ont., CA Est. **$10,000,000**, 21 story, 456,000 sq. ft. air conditioned OFFICE, southwest corner King St. E. and Victoria Ave., TORONTO, ONT. Welport Investments Ltd., 55 Yonge St., Toronto, Ont. CD 10/24/60.

PUERTO RICO

BUILDINGS—LB & CA

▲† **The Metrig Corp.**, 2436 McDonald Ave., Brooklyn 23, N. Y., LB **$2,149,030**, (15 bidders), 150 units Capehart HOUSING, ENG-08-123-61-40, FORT ALLEN, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla., U. S. A. BA 2/9. CD 1/4/61.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **The Lummus Co.**, 2707 Weslayan St., Houston, Tex., U. S. A., CA Est. **$3,000,000**, design and construct CARBON BLACK PLANT, VALENCIA, VENEZUELA.

NO BUILT-IN OBSOLESCENCE HERE!

This bridge is being built to last . . . with a backbone of steel. Time-tested steel for strength, durability, and dependability. And it's being built fast . . . with structural steel fabricated to exact specifications by Ingalls. Steel and Ingalls make a good connection. Plan with steel on your next job – call in Ingalls for skill, versatility, and economy in fabrication and erection.

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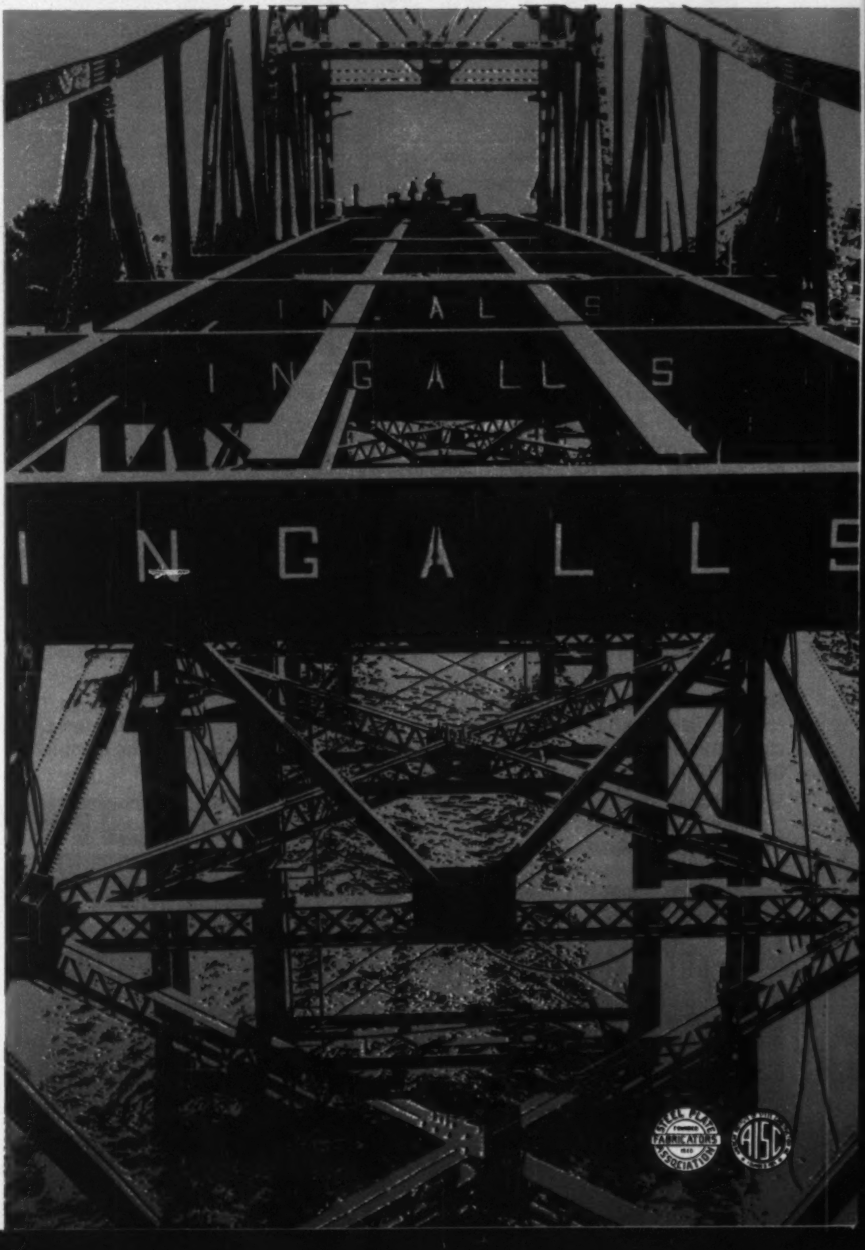
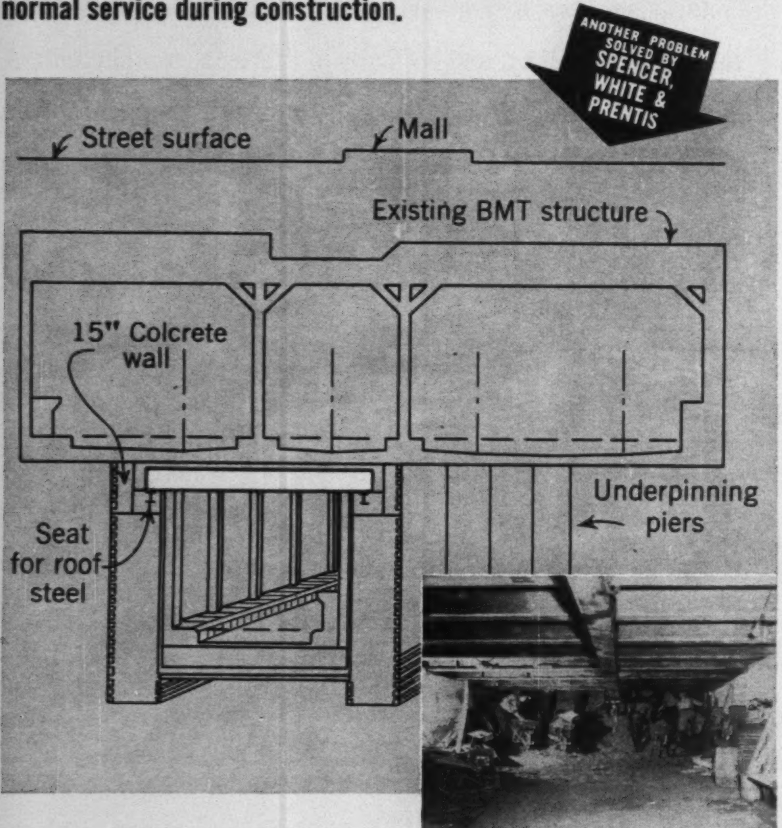


PERMANENT STEEL SUBWAY ROOF DOUBLES AS SHORING

Unusual underpinning supports operating subway while new track is built beneath. Plan entails no interior shoring of existing subway, no track-shifting or changes in electric system or signals, permitting normal service during construction.



Project: Chrystie Street Subway, Section 2, Route 112, for New York City Transit Authority
General Contractor: Cayuga Construction Corp., New York City

With headroom of 5 in. or less between the top of the new steel and the bottom of the operating subway, the use of temporary needle beams as a shoring method on this job posed a problem.

Solution: this unusual plan. The new line's permanent steel roof beams (increased in size and length) were incorporated into the underpinning system, carrying the load temporarily to the retaining walls and later to the completed new foundation.

Write for literature describing this procedure, the Colcrete wall construction, the use of Pretest cylinders to underpin the old subway columns, and other interesting features.

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DETROIT: 2033 PARK AVE. • CHICAGO: 221 NORTH LaSALLE ST. • WASHINGTON, D. C.: TOWER BLDG.

United Carbon Co., Texas Eastern Bldg., Houston, Tex., U. S. A.

▲ **Ford Motor Co.**, 3000 Shaefer Rd., Dearborn, Mich., U. S. A., Own Forces, Est. $3,000,000 AUTOMOBILE ASEMBLY PLANT, VALENCIA, VENEZUELA

PROPOSED PROJECTS

▲ **Tex., Childress**—Greenbelt Municipal & Industrial Water Authority, DAM, Salt Creek of Red River, **$1,250,000**; CLEARING and EARTHWORK for 100,000 acre ft. reservoir, Salt Creek, **$450,000.**

▲ **Va., Richmond**—Henrico County, Dpt. P. Wks., 21st and Main St., bond election Mar. 7, WATERWORKS IMPRVS., Fairfield Dist. WATER MAINS, Tuckahoe Sanitary Dist.; WATER SERVICE IMPRVS., Brookland Dist. **$2,000,000.** Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 1/17/61.

SEWERS, WASTE DISPOSAL

▲ **Ga., Marietta**—Cobb Co. Bd. Revenue, Courthouse, Sanitary SEWER SYSTEM, Mableton and Oakdale areas, **$3,475,000.** Hensley & Assocs., 321 Washington Ave., Marietta, Ga., consult. engrs. CD 2/4/60.

▲ **Mo., St. Joseph**—City, City Hall, **$9,605,000** bond election Apr. 11, SEWAGE TREATMENT PLANT, SEWER EXTENSION. Black & Veatch, 1500 Meadow Lake Parkway, Kansas City 14. Mo., consult. engrs. CD 1/17/61.

▲ **N. J., Edison**—Edison Twp., Municipal Bldg., SEWERAGE SYS. (to be built over period of years); Bonhamtown, Menlo Park and Mirror Lake sections first. **$8,000,000.** Raymond P. Wilson Assoc., 46 Paterson St., New Brunswick, consult. engrs. CD 3/10/60.

▲ **Tenn., Aloca**—City, City Hall, 150,000 sq. ft. SANITARY SEWER LINES and 3 LIFT STATIONS. **$1,450,000.** J. R. Wauford & Co., 2835 Lebanon Rd., Donelson, consult. engrs.

▲ **Tex., Corpus Christi**—City, Dpt. P. Wks., City Hall, voted bonds Jan. 28, Westside SEWER TRUNK, **$1,000,000;**
rehabilitation and expansion of Oso SEWER PLAnt, **$2,805,000;**
STORM SEWERS, **$1,720,000;**
SANITARY SEWERAGE SYSTEM IMPRVT., **$360,000;**
SANITARY SEWER LINE down S. Staples St., **$500,000.** CD 9/9/59.

▲ **Va., Richmond**—Henrico County, Dpt. P. Wks. 21st and Main Sts., bond election Mar. 7, SEWERAGE FACILITIES, Brookland District, **$2,125,000;** SWERAGE IMPROVEMENTS, Tuckahoe Sanitary Dist. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 10/27/60.

BRIDGES

▲ **SOUTH DAKOTA**—State Hy. Dpt., Pierre, BRIDGES, **Brule and Lyman Counties** — 5,110 ft. bridge on I-90 near Chamberlain, over Missouri River, **$6,500,000.** Substructure bids Fall 1961. Superstructure bids Spring 1962. CD 4/15/60.

EARTHWORK, WATERWAYS

▲† **Michigan and Ontario**—U. S. Eng., P. O. Box 1027, Detroit 31, Mich., DREDGING, Course 1, Bayfield Channel, St. Mary's River, CIVENG-20-064-61-39. **$2,000,000.**

UNCLASSIFIED

▲ **N. Y., New York**—Dpt. Marine & Aviation, Battery Maritime Bldg., New York, Zone 4, Proj. D-253, DEVELOPMENT EAST RIVER WATERFRONT, East 18, East 22 Sts. **$5,000,000.** To go ahead after 1962.

▲ **N. Y., New York**—Dpt. Parks, Arsenal Bldg., Central Park, New York, Zone 21, plans by Edward D. Stone, 38 E. 56 St., HARTFORD PAVILION, 2 story 40 x 240 ft. sidewalk cafe, Central Park and E. 59 St. **$1,700,000.** Plans filed. CD 3/16/60.

PUBLIC BUILDINGS

▲† **Alaska, Juneau**—General Services Admin., 19 and F Sts. N. W., Wash., D. C., plans by Olsen & Sands, 109 W.3 St., Juneau, Alaska; Linn Forrest, 622 Hemlock St., Juneau, Alaska, and John Graham & Co., 1426 5 St., Seattle, Wash., FEDERAL OFFICE. **$15,710,000** (no appropriation). CD 2/5/60.

▲ **Colo., Boulder**—State Planning Comn., State Capitol, Denver, plans by Meyer & Ayers, Federal Land Bank Bldg., Baltimore, Md., ADMINISTRATION BLDG., University of Colorado, **$1,000,000.** CD 1/21/61.

▲ **Colo., Boulder**—State Planning Comn., State Capitol, Denver, plans by Architectural Associates, (Hobart D. Wagener, 900 28th St., Boulder, Colo., W. C. Muchow Assocs., 1730 Glenarm Pl., Denver, Fisher & Davis, Denver National Bank, Denver, and Ketchum, Konkel & Hastings, 730 Kalmth St., Denver, Colo.), DORMITORY (1,000 units), for University of Colorado, **$3,000,000.** CD 2/21/56.

▲ **Colo., Boulder**—State Planning Comn., State Capitol, Denver, plans by DeMars & Reay, 2161 Shattuck, Berkeley, Calif., Maried Student HOUSING, Colorado University, **$3,000,000.**

▲ **Conn., Hamden**—Town, Town Hall, plans by Davis, Cochran & Miller, 29 Whitney Ave., Hamden HIGH SCHOOL ADDN., Dixwell Ave. **$2,800,000.** Henry A. Pfisterer, 111 Whitney Ave., New Haven, consult.

engr. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, mech. engrs.

▲ **Conn., Stratford**—Stratford Housing Auth., 857 Main St., plans by William F. Griffin & Assocs., 2000 Black Rock Tpk., Fairfield, 100-unit garden type APARTMENTS for Elderly residents, Wood End Homes, **$1,000,000.** A. & W. Assocs., 189 Broad St., Milford, consult. engrs. Morton S. Fine, 19 Whitney St., Hartford, Conn., landscaping engr. CD 12/9/59. Bids March 1961.

▲ **Ga., Vidalia**—Toombs Co. Hospital Auth., plans by Abreu & Robeson, 141 Walton St., NW, Atlanta, Ga., John M. Meadows Memorial HOSPITAL, **$1,300,000.**

▲ **Ill., Normal**—State Teachers College Bd., State Office Bldg., Springfield, UNIVERSITY HIGH SCHOOL, **$2,350,000,**
PRACTICAL ARTS BLDG., **$1,750,000;**
SCIENCE CLASSROOMS, **$1,800,000;**
mens PHYSICAL EDUCATION PLANT, **$3,275,000;**
MILNER LIBRARY addn., **$500,000;** CD 4/9/45.
LANGUAGES and HUMANITIES BLDG., State Teachers College, **$1,600,000.**

▲ **Mass., Lynn** — City, c/o Bldg. Comn., City Hall, JUNIOR-SENIOR HIGH SCHOOL, Barry Park. **$2,600,000.** Bids June-July 1961. CD 8/7/58.

▲ **Mass., Worcester**—City Housing Auth., 69 Tacoma St., 300 units PHA HOUSING FOR THE ELDERLY. **$3,000,000.** Bids May 1961. CD 8/31/60.

▲ **N. H., Concord**—State New Hampshire, Dpt. P. W. & H., State House, Concord, Dpt. Public Safety OFFICE, **$1,540,000.** Bids May 1961.

▲ **N. J., Bayville**—Ocean Co. Central Regional High School Dist. plans by Ernest Brown, 7 Watchung Ave., Plainfield HIGH SCHOOL ADDN., Berkeley Twp. **$1,595,000.** Vogelback & Baumann, US Hy. 22, Scotch Plains, N. J., mechanical engrs. Edwin F. Jones, Tuttle Rd., Watchung, N. J., electrical engr. CD 12/8/60.

▲ **N. M., Clovis**—City, City Hall, meat processing PLANT. **$2,000,000.** Swift & Co., lessee.

▲ **N. Y., Carmel**—Putnam Community Hospital, c/o Eggers & Higgins, archts., 100 E. 42 St., New York, Zone 17, 65-bed HOSPITAL, 25 acres, Stoneleigh Ave. and Drewville Rd. **$1,350,000.** Slocum & Fuller, 207 E. 32 St., New York 16, N. Y., mechanical engrs. Constr. early 1962. CD 8/11/60.

▲ **O., Akron**—Bd. Educ., 70 N. Broadway, plans by Tuchman & Canute, 777 W. Market St., Northwest HIGH SCHOOL, **$3,000,000.** Bids summer 1961. CD 1/12/61.

▲ **O., North Olmsted** — Bd. Educ., North Olmsted, SENIOR HIGH SCHOOL, **$1,800,000.** Bids 1962.

▲ **Pa., Cheyney**—General State Authority, 18th and Herr Sts., Harrisburg, plans by George M. Ewing Co., archts.-engrs. 1720 Western Savings Fund Bldg., Phila., Zone 7, two 3 story DORMITORIES, for Cheyney State College, Proj. 403-11, **$1,350,000.** CD 9/29/60.

▲ **Pa., Edinboro**—General State Authority, 18th and Herr Sts., Harrisburg, plans by Altman & Altman, Craig & Derrick Sts., Uniontown, two DORMITORIES, for Edinboro State College, Proj. 406-13, **$1,500,000.** CD 9/30/60.

▲ **Pa., Feasterville**—Pa. Pub. School Bldg. Authority, 101 S. 25th St., Harrisburg, plans by Haag & D'Entremont, 400 Cedar St., Jenkintown, JUNIOR HIGH SCHOOL. **$1,500,000.** Bids March 1961.

▲ **Pa., Phila**—Phila Parking Authority, Juniper and Filbert Sts., plans by Harbeson, Hough, Livingston & Larson, 117 S. 17th St., UNDERGROUND PARKING GARAGE, 5th and Commerce Sts. **$2,300,000.**

▲ **Pa., Phila.**—Phila Procurement Dpt., City Hall Annex, plans by Geddes Brecher, Qualls & Cunningham, 258 S. Van Pelt St., LIBRARY, Cottman St. **$1,650,000.** David Bloom, 225 S. 15th. St, consult. engr. CD 9/30/60.

▲ **Tenn., Elizabethton**—City, City Hall, voted **$2,500,000** bonds Jan. 31, FACTORY. Lewisburg Pa. Chair & Furniture Co., lessee. CD 1/9/61.

▲ **Tex., Abilene**—General Services Admin., 1114 Commerce St., Dallas, plans by Boone & Pope, 262 Leggett Drive, POSTOFFICE ADDN., REMODELING. **$1,252,150.**

▲ **Newfoundland, St. John's**—Province of Newfoundland, Parliament Bldgs., St. John's, NURSES TRAINING SCHOOL and HOME. **$3,000,000.**

▲ **N. S., East Hants**—East Hants Municipal Council, HOSPITAL, **$2,000,000.**

▲ **Ont., Toronto**—Bd. Educ., 155 College St., reconstr. Grace St. PUBLIC SCHOOL, **$984,000;** reconstr. Shirley St. PUBLIC SCHOOL, **$941,000;** reconstr. Leslie St. PUBLIC SCHOOL, **$1,220,000.**

▲ **Que., Montreal**—City, City Hall, plans by Crevier, Lemieux & Mercier, 1065 Pratt Ave., Outremont, CITY HALL ANNEX modernization, Gosford St. **$2,000,000.** Bids 2/61. CD 3/8/60.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—Occidental Life Insurance Co., Box 2101 Terminal Annex, plans by W. L. Pereira & Assoc., 1231 W.5 St., 25 story Occidental Center OFFICE, northeast corner 12 and Olive Sts., incl. 5 story parking, **$15,000,000;** 9 story OFFICE, 12 and Hill Sts. **$10,000,000.** Bids Aug. 1961.

▲ **Calif., Santa Clara**—University of Santa Clara, plans by Norton S. Curtis, 1541 The Alameda, San Jose, Calif., 5 story RESIDENCE HALL, STUDENT Center. **$3,000,000.** Bids in March. CD 10/3/58.

(Continued on page 74)

TODAY'S MOST PRECISE LEVELING INSTRUMENT for field, industrial and engineering requirements. Indispensable for structural settlement and load studies . . . for jig and fixture alignment . . . for setting turbines, generators and other heavy machinery, and all first order leveling. The WILD N-3 is dependable, rugged, easy to set up and use. Models for reading direct to .1 mm; .001"; .0005'. All have tilting screw, coincidence level and built-in optical micrometer.

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Only $27 for repairs in 10 years
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When you get 10 years' service from a Diesel, and spend only $27.00 for repairs, you're dollars and dollars ahead of the game.

And that has been the exact experience of Corpus Christi's A. E. Hinman Construction Company.

They put a 3-71 GM Diesel in a Koehring 304 ten years ago . . . added up their engine repair bills recently and discovered the only expense they'd had in all that time was $27 for injector repairs.

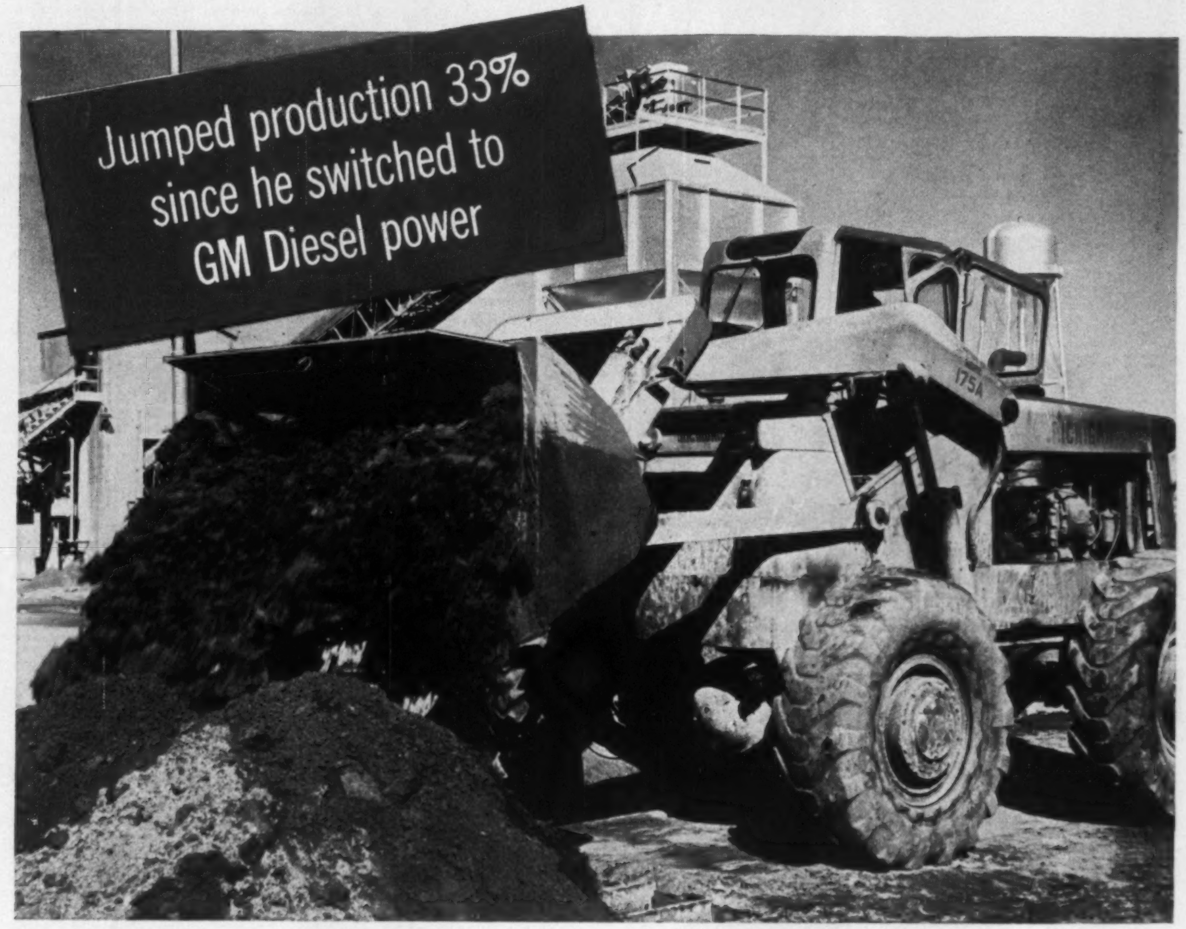
And in those ten years, the "Jimmy" Diesel has averaged about 2,000 hours per year—worked on all kinds of general construction jobs throughout South Texas.

President A. E. Hinman says, "We bought the GM Diesel because other operators had told us 'Jimmys' were trouble-free and very economical to operate." Now, with a decade of low-cost operation behind him, he's got firsthand proof.

You'll get more productivity—and profits—*from* your equipment with GM Diesels *in* your equipment. Wide parts interchangeability, for instance, will save you big money. Proof? Call your GM Diesel distributor—he's in the Yellow Pages under "Engines, Diesel"—or write us direct.

GM DIESEL ALL-PURPOSE

GET A GM DIESEL ENGINE



33% more ore moved per shift—500 pounds extra per bucket—faster acceleration—better stop-and-go performance.

That's what Homestake and New Mexico Partners of Grants, New Mexico, got when they repowered their 175A Michigan loader with a 4-71 "Jimmy" Diesel.

Operating at 6,500 feet—high up where you can really see the difference in Diesels—the "Jimmy"-powered Michigan now moves 2,000 tons of uranium ore every 8-hour shift—lifts 4 tons per bucket bite.

And Frank Hooper—foreman in charge of automotive equipment for the company—says the GM Diesel has also made the Michigan "a steadier-running, smoother-operating machine."

It's not hard to tell the difference in Diesels—just check the work they put out. You'll see GM Diesels outwork competition time after time, regardless of altitude. Let your GM Diesel distributor show you how much extra profit you'll make from that extra productivity. Call him, he's in the Yellow Pages under "Engines, Diesel."

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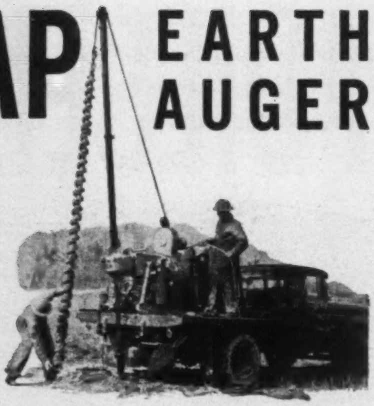

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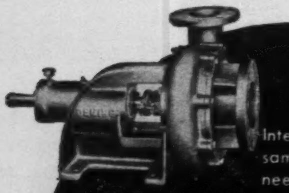

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(Continued from page 71)

▲ **Hawaii, Honolulu**—Kuakini Hospital, 347 N. Kuakini, plans by Fuchino & Fuchino Assocs., Rm. 203, 218 North Queen St., Honolulu, Hawaii, HOSPITAL expansion. **$1,500,000.** Bids in June. CD 6/30/60.

▲ **Hawaii, Honolulu**—R. C. Yap & Co., 436 Piiko St., Honolulu plans by I. M. Pei & Assoc., 385 Madison Ave., New York, N. Y., 30 story 250,000 sq. ft. Metropolitan Tower OFFICE. **$10,000,000.** Weiskopf & Pickworth, 230 Park Ave., New York 17, N. Y., and Don Lo, 1577 Thurston Ave., Honolulu 14, Hawaii structural engrs. To go ahead late 1961. CD 9/28/60.

▲ **Ill., Chicago**—American College of Surgeons, 40 E. Erie St., plans by Skidmore, Owings & Merrill, 30 W. Monroe St., Zone 3, 7 story, ADMINISTRATION bldg. Rush and Erie Sts. **$3,000,000.** CD 10/21.

▲ **Ill., Effingham**—Chateau du Lac Inc., Lake Sara, Effingham, Chateau du Lac Apartments, RETIREMENT HOME Lake Sara near here, **$3,000,000.**

▲ **Ill., Elgin**—S. T. Herzl & Steven L. Amdur, 23 W. Ontario St., Chicago, plans by Arthur Swanson & Assocs., 64 Old Orchard St., Skokie, 102 unit MOTEL, RESTAURANT AND MEETING PLACE, Illinois Tollway and Highway 31, **$2,100,000.** Bids in Spring 1961.

▲ **Ill., Homewood**—Pacesetter Homes, Inc., 1000 E. 162nd St., South Holland, plans by Harry J. Quinn & Assocs., 1000 E. 162nd St., South Holland, SHOPPING CENTER, 183rd St. and Kedzie Ave. **$2,000,000.** Bids in Fall 1961.

▲ **Iowa, Devenport**—St. Lukes Hospital, 1227 E. Rusholm St. plans by Richard & Assocs., 1001 Kahl Bldg., 110 bed HOSPITAL addn., **$1,600,000.** Brooks-Borg, 815 Hubbell Bldg., Des Moines, assoc. archts. Bids Summer 1962.

▲ **Mass., Boston**—Boston University, 755 Commonwealtn Ave., three 15 story CLASSROOM BLDGS. **$6,500,000.** Bids for first unit April 1961.

▲ **Mass., Boston**—Morgan Memorial, 85 Shawmut Ave., plans by Bourne, Connor, Nichols & Whiting, 177 State St., 6 story SALES BLDG., Porter and Corning Sts. **$2,500,000.** Bids May 1961.

▲ **Mass., Brookline**—Boston University, 755 Commonwealth Ave., Boston, Women's DORMITORIES. **$2,000-000.**

▲ **Mich., Pontiac**—A. & W. Management Co., 1010 Washington Blvd. Bldg., Detroit, Zone 26, SHOPPING CENTER, Telegraph and Elizabeth Lake Rd., Waterford Twp. **$1,000,000.**

▲ **Minn., Bloomington (P.O. Minneapolis)**—Convention Centers, Inc., c/o Ekberg-Petri, Inc., archt., 6500 Olson Memorial Hy., Minneapolis, SPORTS CENTER, BOWLING THEATER, 96-room MOTEL, OFFICES, etc., 86 St. and Cedar Ave. **$2,000,000.** Bids probably 1961.

Minn., Minneapolis—The Knutson Co., 212 S.6 St., six 24 story River Towers APARTMENTS, 3 Ave. S. and 1 St., Gateway District. **$22,000,000.**

▲ **N. J., Newark**—Bd. Trustees St. Michael's Hospital, 306 High St., plans by Schmidt Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., HOSPITAL, RESIDENTIAL BLDGS. and CHAPEL, High St. and Central Ave. **$10,000,000.**

▲ **N. J., Old Bridge**—Sal Cantor Assoc., U. S. Hy. 609, Sayreville, N. J., 290 HOUSES, adjoining Sayre Woods South, Madison Twp. **$5,000,000.**

▲ **N. Y., New York**—Columbia—Presbyterian Medical Center, Broadway and 68 St., plans by Rogers & Butler, 219 E. 44 St., New York, N. Y., 1 story MEDICAL RESEARCH CENTER, library and central service bldg. **$21,500,000;** RESIDENCE HALL for married students. **$3,200,000;** renovation CLASSROOMS. **$2,400,000;** AUDITORIUM. **$1,100,000;** altering Presbyterian HOSPITAL. **$2,000,000;** DOCTORS OFFICES addn. **$2,000,000;** modernizing BABIES' HOSPITAL, **$2,000,000;** X-RAY DEPARTMENT Broadway, W. 165 St. and West 168 Sts. **$800,000.** Jaros, Baum & Bolles, 415 Lexington Ave., New York 17, N. Y., mechanical engrs. Severud, Elstad, Krueger, 415 Lexington Ave., New York 17, N. Y., structural engrs. CD 1/27.

▲ **N. Y., New York**—Isadore Rosen & Sons, Inc., 215 E. 204 St., New York, Zone 58, plans by Wechsler & Schimenti, 118 E. 25 St., New York, Zone 10, 115-room, 60,000 sq. ft., air-conditioned MOTEL, Bruckner Blvd. at intersection Bronx River Parkway and Major Deegan Expressway. **$1,240,000.** CD 10/7/60, under Edward E. Klein as owner.

▲ **N. Y., St. George**—London Terrace, Inc., 410 W. 24 St., New York 11, N. Y., plans by Philip Birnbaum, 12 E. 48 St., New York 17, N. Y., 16 story, 244-unit APARTMENT, Victory Blvd. between Eddy St. and Theresa Pl. **$1,540,000.** Robert Rosenwasser, 375 5 Ave., New York 16, N. Y., structural engr. Bardos Ettinger, 118 E. 28 St., New York 16, N. Y., mechanical engrs. CD 12/9/60.

▲ **O., Columbus**—Don M. Casto-Harold Zieg & Assoc., 42 S. 4th St., MOTEL and RESTAURANT, between Ackerman Rd. and Riverview Dr. **$2,500,000.** Stouffer Corp., Cleveland, lessee.

▲ **O., Huron**—Marshall G. Browne, c/o Bay Constr. Co. & Assoc., Huron, HOUSING, 2 mi. east of here. **$1,000,000.**

▲ **Pa., Pittsburgh**—Bell Telephone Co. of Pa., Gateway Center, Zone 22, 50,000 sq. ft. COMPUTER CENTER OFFICE, Lower Hill Redevelopment area near Civic Arena, **$1,500,000.** Bids September 1961.

▲ **Pa., Wayne**—S.K.F. Industries, Front St., and Erie Ave., Phila., RESEARCH LABORATORY and OFFICE, **$2,500,000.**

▲ **Tex., Plano**—Dr. Milton V. Davis & Family, 3707 Gaston Ave., Dallas, plans by Grayson Gill, Inc., 1913 San Jacinto St., Dallas, 100-bed patient oriented

HOSPITAL, State Hy. 5 and Renner Rd., **$2,225,000;**
3 story, masonry, doctors OFFICE, 20 acres, State Hy. 5 and Renner Rd., **$1,500,000;**
RESEARCH, 20 acres, State Hy. 5 and Renner Rd., **$450,000;**
INFIRMARY FOR AGED, DAY NURSERY, NURSES QUARTERS, CAFETERIA, 20 acres, State Hy. 5 and Renner Rd., **$500,000.**

▲ **Tex., San Antonio**—Morris Kallison, 124 S. Flores St., plans by Atlee B. & Rob. M. Ayees, 342 W Woodlawn Ave., 10 story OFFICE, Cypress St. between N. McCullough & Main Aves., **$3,000,000.** Bids April 1961. Reynolds & Morgan, Ins. Bldg., and Martin E. Staley, No. 31, Chandler Bldg., consult engrs. CD 11/23/60.

▲ **Tex., San Antonio**—Texas Southwest Developers, Inc., C. C. McLain, 5931 Morningside, Dallas, plans by Gideon & Noblitt, 13616 Preston Rd., Dallas, Proj. No. 1, 13 story, 304 unit luxury APARTMENT, Blanco Rd. and Loop 13, Castle Hills, **$3,500,000;** Proj. No. 2, 340 APARTMENT UNITS, area Blanco Rd. and Loop 13, **$2,750,000;** Proj. No. 3, 350 APARTMENT UNITS, Blanco Rd. and Loop 13, **$2,500,000.** CD 2/7/61.

▲ **Va., Princess Anne**—Princess Anne Co. Memorial Hospital, Princess Anne Plaza, Princess Anne County Memorial HOSPITAL, Lynnhaven. **$1,500,000.** CD 11/14/60.

▲ **Wash., Kennewick**—Tri-City Center, Inc., c/o R. C. Matheson, 1923 S. Lone St., 693,000 sq. ft. SHOPPING CENTER, Kennewick Highlands bet. W. Clearwater and W. Hood Aves., east of Sanders field. **$3,000,000.** Bids 8/15/61.

▲ **Wis., Milwaukee**—Wil-Ten Co., Inc., 1752 W. Silver Spring Dr., plans by John Spoden Assocs., Inc., archt.-engr., 1752 W. Silver Spring Dr., OFFICE. **$4,000,000.**

▲ **Que., Montreal**—Hilton of Canada and Hilton Hotels International, Queen Elizabeth Hotel, plans by William B. Tabler, 401-415 7th Ave., New York 1, N. Y., U. S. A., and Gerard Notebaert, assocs-archts., 1440 Towers St., HOTEL, Cote de Liesse Rd., opposite Montreal Airport, Dorval, **$3,000,000.** Waymanf Wing, 411 7th Ave., New York 1, N. Y., structural engr. Cosentini Assocs., 10 Columbus Circle, New York 19, N. Y., mechanical engrs. James Keith, 4123 Sherbrooke St. W., Montreal, Que owners engr. CD 8/11/60.

INDUSTRIAL BUILDINGS

▲ **Ala., Mobile**—Ideal Cement Co., State Docks, six concrete cement STORAGE SILOS, two BINS, TRUCK SCALES, and CONVEYOR SYSTEM, **$1,500,000.** CD 6/1/55. Bids soon.

▲ **Calif., San Jose** — International Business Machines Corp., 590 Madison Ave., New York 22, N. Y., plans by John Bolles, 14 Gold St., San Francisco, Calif., 2 story, 154,000 sq. ft. product development LABORATORY. Bids in March.

▲ **Hawaii, Honolulu**—Dairymen's Assoc. (Beatrice Food, Inc.), 1401 S. Beretania St., plans by Potter & Potter, Rm. 404, Continental Hawaii Bldg., Honolulu, Hawaii, and Hertel, Johnson, Eipper & Stopa, 950 Pine St., Glenview, Ill., steel, concrete PROCESSING PLANT. **$2,000,000.**

▲ **Mass., Ashland**—Fenwall, Inc., 51 Mellen St., plans by Carleton R. Richmond, Jr., 22 Follen St., Cambridge, Mass., FACTORY. **$1,050,000.** Bids March 1961.

▲ **Mass., Quincy**—New England Power Co., 441 Stuart St., Boston, Mass., POWER PLANT. **$10,000,000.** Bids June 1961.

▲ **N. C., Asheville**—Carolina Power & Light Co., 336 Fayetteville St., Raleigh, 150,000-175,000 kw. STEAM GENERATING PLANT, Skyland Section, **$25,000,000.** Bids early 1962.

▲ **Labrador, Wabush Lake**—Wabush Iron Co., Ltd., 1010 St. Catherine St. W., Montreal, Que. (Youngstown Sheet & Tube Co., 7655 Market St., Youngstown, O., U. S. A., Inland Steel Co., 30 W. Monroe St., Chicago 3, Ill., U. S. A. Inter-Lake Iron Corp., 1910 Union Commerce Bldg., Cleveland, O., U. S. A., Pickands Mather Co., Union Commerce Bldg., Cleveland, O., U. S. A. and Steel Co. of Canada Ltd., Canada) IRON ORE CONCENTRATOR, related works, 21 mi. railway. **$20,000,000.** Bids soon.

▲ **Quebec, Pointe Noire**—Wabush Iron Co., Ltd., 1010 St. Catherine St. W., Montreal, Que. (Youngstown Sheet & Tube Co., 7655 Market St., Youngstown, O., U. S. A., Inland Steel Co., 30 W. Monroe St., Chicago 3, Ill., U. S. A., Inter-Lake Iron Corp., 1910 Union Commerce Bldg., Cleveland, O., U. S. A., Pickands Mather Co., Union Commerce Bldg., Cleveland, O., U. S. A. and Steel Co. of Canada Ltd., Canada) PORT FACILITIES for iron ore plant, **$50,000,000.** Bids soon.

AMERICANS ABROAD

▲ **Vietnam, Thu-Duc**—Dpt. P. Wks., Saignon, 33,000 kw. THERMAL POWER PLANT; 26 mi. 66 kw. transmission line to Saignon. **$12,700,000.** Gibbs & Hill, Penn. Station, New York, N. Y., U.S.A., consult. engrs. CD 12/5/60.

FOREIGN

▲ **Italy, Torre del Lago**—A. L. Hagedoorn, Florence, HOTEL and THEATER. **$2,000,000.**

▲ **Saudi Arabia**—Arabian-American Oil Co. (ARAMCO), Dhahran, Saudi Arabia, 16 mi. PIPE and PUMP, Safanya Oil Field. **$2,750,000.**

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 28 Massachusetts
March 10, 17, 24, 31 Vermont

BUILDINGS—BA

▲ **Conn., Waterbury** — BA 2/28 — St. Mary's Hospital Corp., 56 Franklin St., HOSPITAL ADDN., Scovill St., $5,000,000. Polak & Sullivan, 1397 Chapel St., New Haven, archts. Arthur G. Beaulieu Assocs., 2348 Whitney Ave., Hamden, engrs. Extended date. CD 1/27/61.

▲ **Mass., Boston**—BA 3/8—City, Dpt. School Bldgs., 26 Norman St., ELEMENTARY SCHOOL, Pearl, Summer, High and Bartlett Sts., Charlestown. $1,150,000. Plans deposit $100. W. Chester Browne & Assoc., Inc., 122 Arlington St., Boston, Mass., archt. CD 3/19/58.

▲ **Mass., Attleboro**—BA 3/9—City Housing Auth., 37 Carlon St., Mass. 667-1 HOUSING FOR THE ELDERLY, South Ave. near Thatcher St. $1,000,000. Plans deposit $50. Extended date. S. S. Eisenberg, 139 Boylston St., Boston, archt. Alonzo B. Reed, Inc., 141 Milk St., Boston, engr. CD 1/30/61.

BUILDINGS—SLC

▲ **N. H., Nashua**—Simoneau Plaza, Inc., 308 Main St., soon lets contract, SHOPPING CENTER, East Side Main St. $1,064,000. E. T. Tracy, 57 Sudburg St., Boston, Mass., struc. engr. Robert D. Goodoak, 15 Evergreen Rd., Reading, Mass., mech. engr. CD 1/30/61.

BUILDINGS—LB & CA

▲ **Hyder Bros., Inc.**, Portsmouth, N. H., Owner Builds, **$1,000,000**, SHOPPING CENTER, Central Ave., DOVER, N. H. L. O. Geoffrion, 1240 Maplewood Ave., Portsmouth, N. H., archt. CD 5/23/60.

▲ **Wiliam A. Mauser Jr. Constr. Co.**, 345 N. Main St., West Hartford, Conn., CA **$1,244,870**, Proj. BI-D-211B, South DORMITORY, University of Connecticut, STORRS, CONN. State Pub. Wks. Comr., 165 Captiol Ave., Hartford, Conn. CD 1/13/61, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 7 Maryland
STREETS AND ROADS
March 7 Maryland March 3 Pennsylvania

▲ **N. J., Ocean City**—BA 3/4—City, City Hall, SEWAGE TREATMENT PLANT, pumping stations and sewers, **$1,250,000.** Hoxworth, Behnke & Girard Assocs., 213 Kings Hy. East, Haddonfield, engrs.

BUILDINGS—BA

▲ **Md., Baltimore**—BA 3/1—Loyola College, Charles St. and Cold Spring Lane, 5 story, 54,000 sq. ft. ENGINEERING PHYSICS BLDG. $1,500,000. Plans deposit $50. Greiner & MacEwen, 1106 N. Charles St., Zone 1, archts.-engrs.

▲ **N. J., West Milford**—BA 3/2—Bd. Educ. Twp. West Milford, Macopin School Rd., West Milford, HIGH SCHOOL. $1,550,000. Neil S. Greydanus, 192 Fairview Ave., Prospect Park. archt. CD 7/7/60.

HEAVY CONSTRUCTION—LB & CA

▲ **American Bridge Div. U. S. Steel Corp.**, 71 Broadway, New York 6, N. Y., CA Est. over **$1,000,000**, UNISPHERE, 120 ft. dia. stainless steel mounted on base in 350 ft. wide dodecagon-shaped pool, Armillary Sphere Theme for 1964-65 World's Fair, FLUSHING, N. Y. New York World's Fair Corp., Flushing Meadow Park, P.O. Box 1964, Flushing 52, N. Y. Clarke & Rapuano, 830 3 Ave., New York 22, N. Y., engrs.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, BRIDGE,
Poirier & McLane Corp., 33 W.42 St., New York, N. Y., CA **$3,745,206**, overpass viaduct Rte. 95, Section 1H from 680 ft west Northern RR of New Jersey to Grand Ave., City of Englewood, Leonia Boro, FP No. NJ I-95-7(11) 64, Bergen Co. BA 1/26. CD 1/30/61, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, ROAD,
James Julian, Inc., 405 S. DuPont Rd., Elsmere, Pa., CA **$4,968,390**, (11 bidders), 45,886 ft. divided hy. RCC 24 ft. wide each side of median area; 12 bridges, A sec. Downingtown bypass, Interstate T. R. U. S. 30, Chester Co. CD 1/5/61, under LB.

BUILDINGS—LB & CA

▲ **Siegfried Constr. Co., Inc.**, 6 N. Pearl St., Buffalo, N. Y., CA Est. **$1,300,000**, WAREHOUSE, CHEEKTOWAGA, N. Y. S. M. Flickinger Co., Inc., 180 Niagara Frontier Food Terminal, Buffalo, N. Y. BA 12/21. CD 11/25/60.

▲ **Avella Constr. Co.**, 215 E.149 St., New York 51, N. Y., CA **$1,821,600**, general contract EDUCATION and PRACTICE SCHOOL, Bldg. 20, incl. ground imprvs., service connections and ground lighting, State University College of Education, CORTLAND, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. CA about 2/13. CD 2/7/61, under LB.

▲ **Jukar Constr. Corp.**, 53 Chambers St., New York 7, N. Y., CA Est. **$2,400,000**, 8 story, 168 unit APARTMENT, 170 car garage, Bayard St. between Bowery and Elizabeth Sts., NEW YORK, N. Y. Chinatown Properties, Inc., c/o James Y. Typond, 40 Mott St., New York, N. Y. Batlan & Oxman, 220 W.42 St., New York 36, N. Y., mechanical engrs. Wayman Wing 411 7 Ave., New York 1, N. Y., structural engr. CD 10/21/60.

▲ **Frank Briscoe Co. Inc.**, 287 So. 19 St., Newark, N. J., CA 360,000 sq. ft. ADMINISTRATION CENTER near Pine Lake, WAYNE, N. J. American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y. Vincent Kling, 917 Corinthian Ave., Phila, Pa., archt. CD 7/29/60.

▲ **Stewart M. Muller, Inc.**, 190 E. Post Rd., White Plains, N. Y., CA **$1,927,000**, JUNIOR-SENIOR HIGH SCHOOL, Mount Pleasant, THORNWOOD, N. Y. Bd. Educ. Central School Dist. No. 1 of Mount Pleasant and North Castle, Thornwood, N. Y. BA 1/31, CA about 2/8. CD 2/3/61, under LB.

▲ **Samuel Halpern**, 476 E. Main St., Somerville, N. J., Owner Builds, **$1,000,000**, 54 HOUSES, Lake Ave., SCOTCH PLAINS, N. J.

▲ **L. F. Driscoll**, 32 W. Coulter St., Phila., Pa., CA **$3,569,000**, MEDICAL RESEARCH BLDG., PHILA., PA. Temple University Hospital, 3401 N. Broad St., Phila., Pa. BA 12/22/60. CD 1/24/61, under LB.

▲ **George K. Heebner, Inc.**, 1231 Vine St., Phila., Pa., CA **$1,000,000**, MFG. PLANT and OFFICE, WILLOW GROVE, PA. Elco Corp., M St. and Erie Ave., Phila., Pa. Everett Assocs., Commonwealth Bldg., Allentown, Pa., archts.

▲ **John A. Robbins Co., Inc.**, 3 Penn Center Plaza, Phila, Pa., Owner Builds, **$10,000,000**, two 10 story, HOTEL BLDGS., Penna. Blvd., PHILA, PA. CD 2/17/61.

▲ **Stofflet & Tillotson**, 2043 Eastburn Ave., Phila, Pa., CA **$2,220,000**, Women's DORMITORY, CH-PA-106-D, PHILA, PA. Temple University Hospital, 3401 N. Broad St., Phila, Pa. BA 1/24/61. CD 2/9/61.

VERSATILE

Manitowoc Sectional Barges

Pennsylvania firm demonstrates barge versatility by rigging unit as dump scow

Tionesta Sand & Gravel Co., Tionesta, Pa., has proven there's no end to the versatility of Manitowoc Sectional Barges. In the job shown here, the company has assembled two standard Type "H" pontoon sections, 40′ x 10′ x 6′, and a pair of raked end sections, 30′ x 10′ x 6′ to form a rectangular, open-centered barge unit, supporting a 100 cu. yd. capacity hopper. The floor of the hopper is formed by two pairs of steel trap doors, which may be opened in combination or individually to dump full or partial loads.

River bottom aggregate on Tionesta's operation is loaded into the bottom dump unit by a dragline working from a Manitowoc Type "L" Sectional Barge. Unmatched buoyancy for a unit of its size results in a safe margin of freeboard, even when the barge carries a full 100 yards of aggregate.

This is just one example of the almost limitless number of applications for which Manitowoc Sectional Barges are used. Any type or shape is possible through various combinations of individual pontoons. A variety of optional equipment is available. And you're not limited to use in only one area . . . simplified assembly and disassembly means individual sections can be transported by rail or truck. Get more information now from your Manitowoc Crane distributor, or write direct.

MANITOWOC ENGINEERING CORP.
(A subsidiary of The Manitowoc Company, Inc.)
MANITOWOC, WISCONSIN

▲ **John K. Ruff**, 3010 Ridgewood Ave., Baltimore 15, Md., LB **$1,716,400,** (19 bidders), INFIRMARY, Spring Grove State Mental Hospital, CATONSVILLE, MD. State, Dpt. P. Imprvts., 301 W. Preston St., Baltimore 1, Md. BA 2/9. CD 1/25/61.

▲ **HRH Constr. Corp.**, 579 5th Ave., New York, N. Y., CA Est **$6,000,000,** Capitol Park APARTMENTS, 8 story, 320 unit apartment, 101 G St. S. W., and 8 story, 289 unit apartment, 301 G St. S. W., WASH., D. C. National Capitol Redevelopment Corp., 1025 Connecticut Ave. N. W., Wash., D. C. Satterlee & Smith, 301 Dupont Circle N. W., Wash., D. C., archts.

SOUTH

HEAVY CONSTRUCTION—BA

N. C., **Raleigh**—BA 3/2—City, City Hall, 116,000 lin. ft. 8 and 12 in. WATER LINES, various streets. $900,000. Plans deposit $25. **Vernon Peebles**, City Hall, city engr. CD 6/6/60.

▲† **Va., Langley Field**—BA 3/10—National Aeronautics & Space Admin., Bldg. 1195, TUNNEL erection and constr., 8 ft. high temperature structures tunnel, bldg. 1265, Proj. L-1440. $1,000,000. Sanders & Thomas, Inc., Security Trust Bldg., Pottstown, Pa., engr. CD 8/16/60.

▲† **Florida**—BA 3/14—U. S. Eng., Box 4970, Jacksonville, construct LEVEE 29, Section 2, Structures 12A, B, C, E, and 14, and relocation of U. S. Hy. 41 on Crown of Levee, Central & Southern Florida Flood Control Project, ENG-08-123-61-54. $3,500,000. Plans deposit $10. CD 2/13/61.

▲† **Florida**—BA 3/15—U. S. Eng., Box 4970, Jacksonville, constructing CANAL 43, Section 1, Caloosahatchee River, Central & Southern Florida Flood Control Project, ENG-08-123-61-56, $3,000,000. Plans deposit $5. CD 2/13/61.

▲† **Fla., Cocoa**—BA 3/16—U. S. Eng., 575 Riverside Ave., Jacksonville, RUNWAY, overrun and warmup apron, Patrick Air Force Base, ENG-08-123-61-54B. $1,500,000. Plans deposit $10. CD 2/8/61.

BUILDINGS—BA

▲ **Ky., Madisonville**—BA 3/1—Hopkins County Bd. Educ., SCHOOLS. $1,000,000. Plans deposit $75. Max Bisson, 2625 Frederica St., Owensboro, Ky., archt. Engineering Services, R.R. 2, Hopkinsville, Ky., plumbing and heating engrs. Pritchett & Assoc., Center and Dave Sts., Madisonville, Ky., electrical engrs. CD 5/13/60.

▲ **N. C., High Point**—BA 3/9—Presbyterian Home, Inc., P. O. Box 1110 (selected list of bidders) 51,000 sq. ft. RESIDENCE WING-INFIRMARY $1,021,000. J. N. Pease & Co., 2925 N. Independence Blvd., Charlotte, archt. CD 11/5/59.

▲ **Va., Franklin**—BA 3/16—Southampton Memorial Hospital 4 story, 85,000 sq. ft. steel, masonry, 107-bed HOSPITAL. $2,500,000. Plans deposit $90. Extended date. Marcellus Wright & Son, 100 E. Main St., Richmond, archts. Blanton & Levy, 1618 Altamont Ave., Richmond, struc. engrs. W. M. Brown, 100 E. Main St., Richmond, mech. engr. CD 2/9/61.

HEAVY CONSTRUCTION—LB & CA

▲ **R. E. Dailey & Co.**, 21675 Telegraph St., Box 4948, Detroit 19, Mich., CA **$3,968,138,** Contract No. 11, SANITARY SEWERAGE IMPRVS., SOUTH CHARLESTON, W. VA. City City Hall, South Charleston, W. Va., BA 12/8/60. CD 12/19/60, under LB. **Patrick Haddock Coal & Contracting Co., Inc.**, P. O. Box 4438, Pittsburgh 5, Pa., CA **$586,276,** Contract 14, SANITARY SEWERAGE IMPRVS., (South Charleston, W. Va.).

▲ **The Auchter Co.**, P.O. Box 1193, Jacksonville, Fla., and **Duval Engineering & Contracting Co.**, P.O. Box 1588, Jacksonville, Fla., CA Est. **$6,000,000,** CIRCUSLAND, incl. 100,000 sq. ft. bldgs., paving, sewers, railroad tracks, water lines, etc., SANFORD, FLA. Florida Entertainment Enterprises, Inc., c/o George D. Auchter, Jr., 110 W. Commercial St., Jacksonville, Fla.

▲ **LOUISIANA**—State Dpt. Hys., Rm. 426, Headquarters Admin. Bldg., Baton Rouge, BRIDGE,
John F. Beasley Constr. Co., Mercantile Bank Bldg., Dallas, Tex., CA **$1,264,932** superstructure steel girder spans Red River Bridge, Shreveport Expressway 0.18 mi. SP 451-02-08. FAP I-20-1(22)19, Caddo and Bossier Parishes. BA 1/25. CD 1/30/61, under LB.

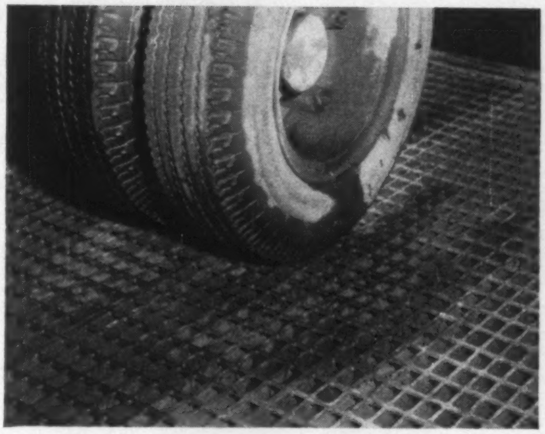
▲† **Warren Bros. Roads Co.**, Box 577, Greenville, Miss., LB **$1,032,680,** (6 bidders), ARTICULATED CONCRETE MATTRESS CAST, Mississippi River, St. Francisville, Inv. 61-95, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. CD 9/20/60.

BUILDINGS—LB & CA

▲ **Kenhill Constr. Co.**, 3410 Chesterfield Ave. S.E., Charleston, W. Va., CA **$1,018,594** (12 bidders), HAYES JUNIOR HIGH SCHOOL, St. Albans, CHARLESTON, W. Va. Bd. Educ., Kanawha Co., Courthouse, Charleston, W. Va. C. E. Silling & Assocs., 314 Masonic Temple Bldg., Charleston 5, W. Va., archts. CD 4/7/59.

▲ **R. J. Reynolds Tobacco Co.**, Reynolds Engineering Bldg., Main St., Winston-Salem, N. C., Owner Builds, **$1,000,000,** SHOP-OFFICE, PARKING DECK, WINSTON-SALEM, N. C.

▲ **Algernon Blair Constr. Co.**, 1209 First National Bank Bldg., Montgomery, Ala., CA **$1,058,000,** Women's RESIDENCE HALL, TUSCALOOSA, ALA. University of Alabama, P.O. Box 1957, Tuscaloosa, Ala. BA 1/17/61. CD 1/25/61, under LB.



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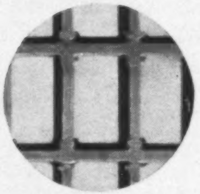

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▲ Owner, c/o Carl S. Hasty, archt., 5307 Charlotte Ave., Nashville, Tenn., Owner Builds, **$4,000,000**, 287 RESIDENCES, MADISON, TENN.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
March 14 Ohio
STREETS AND ROADS
March 14 Ohio

▲ **Ill., Chicago**—BA 2/28—Dpt. Purchases, City Hall, Zone 2, No. 80.82-61-26, AUXILIARY OUTLET SEWERS, Leamington Ave. system. $2,400,000. CD 11/6/59.

▲ **Wis., Portage**—BA 3/9—Columbia Co., Courthouse, 3 story, mezzanine, bsmnt., 55,000 sq. ft. COURTHOUSE, $1,100,000. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, archts. CD 4/25/60.

BUILDINGS—BA

▲ **Ind., New Albany**—BA 3/7—New Albany & Floyd Co. Bldg. Auth., Courthouse, Spring and State Sts., HOSPITAL ADDN. $3,950,985. Walker, Applegate, Oakes & Ritz, 218 Elsby Bldg., archts. Southern Engineering Co., 322 W. Jefferson St., Louisville 2, Ky., engr. CD 1/12/61.

▲ **Wis., Marshfield**—BA 3/14—St. Joseph's Hospital, 611 S. St. Joseph St., 6 story, 170-bed HOSPITAL ADDN., BOILER HOUSE. Hills, Gilbertson & Fisher, 6009 Wayzata Bldg., Minneapolis, Minn., archts. CD 11/11/60.

▲ **O., Hannibal**—BA 3/16—River Local Bd. Educ., Box 37, three SCHOOLS, rehab. four SCHOOLS. $2,000,000. Joseph Baker & Assocs., 180 Hudson St., Newark, archts. CD 5/10/60.

▲ **Mich., Center Line**—BA 3/20—City, 7550 10 Mile Rd., SANITARY SEWERS, pumping station, internal collector sewers. $1,000,000. Plans deposit $25. Pate & Hern, 532 Michigan Blvd., Detroit 26, Mich., engrs. CD 2/1/61.

† **Illinois**—BA 3/22—U. S. Eng., 536 S. Clark St., Chicago, Saddle Dam No. 2 and PUMPING STATION, Carlyle Reservoir, Kaskaskia River, Clinton Co., approx. 2 mi. east of Carlyle, Clinton Co., CIVENG-23-065-61-60. $900,000. CD 9/23/60.

HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15, ROAD,
Traylor Bros., Inc., Station B, Box 6066, Evansville, Ind., CA **$5,049,788**, Type T 71, structures 4.859 mi. U.S. Rte. 52, Section 7.90, U-F-393(10) City of Ironton, Village of Coal Grove, Upper Twp. BA 1/31/61. CD 2/9/61, under LB.

▲ **Great Lakes Dredge & Dock Co.**, 228 N. LaSalle St., Chicago 1, Ill., LB **$1,839,180**, HARBOR IMPRVS., 5,070 ft. channel dredging, Navy Pier, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. CD 11/6/59.

BUILDINGS—LB & CA

▲ **John M. Hemmer Constr. Co., Inc.**, 1020 Prospect St., Covington Ky., LB **$1,109,000**, est. $1,800,000, (5 bidders), Eden JUNIOR HIGH SCHOOL, CINCINNATI, O. Bd. Educ., 608 E. McMillan St., Cincinnati, O. BA 2/8/61. CD 1/13/61.

▲ **Albert M. Higley Co.**, 2036 E. 22nd St., Cleveland 15, O., CA **$1,000,000**, est. $1,250,000, (3 bidders), PLANT, E. 178th St. and St. Clair Ave., CLEVELAND, O. Brush Beryllium Corp., 5209 Euclid Ave., Cleveland, O. BA 1/19/61. CD 1/12/61.

▲ **Albert M. Higley Co.**, 2036 E. 22nd St., Cleveland, O., CA Est. **$1,000,000**, Slayter Hall COLLEGE UNION BLDG., GRANVILLE, O. Denison University, Granville, O. Joseph Baker & Assocs., 180 Hudson St., Newark, O., archts. Constr. in April. CD 8/19/59.

▲ **James McHugh Constr. Co.**, 6449 S. Park St., Chicago, Ill., CA **$19,000,000**, two APARTMENTS, Chicago River and State St., CHICAGO, ILL. Building Service Employees International Union, 312 W. Randolph St., Chicago, Ill. CD 3/3/60.

▲ **Ragnar Benson Co.**, 4744 W. Rice St., Chicago, Ill., CA **$1,500,000**, RESEARCH ADDN., OFFICE, NORTHLAKE, ILL. Automatic Electric Co., Wolf Rd., Northlake, Ill. BA 2/3/61. CD 1/26/61.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
March 9 Kansas   March 17 Texas
STREETS AND ROADS
March 1, 3 Colorado   March 9 Kansas
March 17, 18 Texas

▲† **Kansas**—BA 3/14—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., LEVEES, pumping plants Kansas River, Manhattan, CIVENG-23-028-61-59. $1,500,000. Plans deposit $10. CD 2/13/61.

▲† **Texas**—BA 3/14—Office of Dist. Engineer, 100 West Vickery, Fort Worth, SPILLWAY, Waco Dam and Reservoir, Brazos River Basin, Bosque River, ENG-41-443-61-65. CD 2/8/61.

▲† **New Mexico**—BA 3/21—U. S. Eng., P.O. Box 1538, Albuquerque, Two Rivers RESERVOIR PROJ., Chaves Co., Rio Hondo, Roswell, ENG-29-005-61-9, $5,500,000. CD 2/8/61.

▲† **N. M., Albuquerque**—BA About 3/22—U. S. Eng., P. O. 1538, 1 story, 256 x 48 ft. NUCLEAR WARFARE LABORATORY, CALIBRATION LABORATORIES, CONFERENCE ROOM, Kirtland Air Force Base, ENG-29-005-61-59, $1,000,000. CD 9/17/57.

HEAVY CONSTRUCTION—LB & CA

▲ **Foley Bros. Inc.**, New York Bldg., St. Paul, Minn., **Winston Bros. Co.**, 301 Clifton Ave., Minneapolis, Minn., and **Hurley Constr. Co.**, 403 S. Robert St., St. Paul, Minn., LB **$1,947,262**, (5 bidders), St. Peter St.-Rondo Ave. STORM WATER RELIEF SEWER, Sections 1 and 2, and Rondo Ave. and Rice St. relocation and sanitary sewer diversion, ST. PAUL, MINN. City, City Hall and Court House, St. Paul, Minn. BA 2/14. CD 1/18/61.

▲† **Lawless & Alford**, P. O. Box 600, Austin, Tex., CA **$4,482,255**, HOSPITAL, Sheppard Air Force Base, ENG-41-443-61-18, WICHITA FALLS, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. BA 1/26/61. CD 1/30/61, under LB.

▲ **Wasatch Line Constr. Co.**, 1574 SW Temple St., Salt Lake City, Utah, CA **$1,750,000**, 52 mi. 230,000 volt TRANSMISSION LINE from Riverton Substation to Atlantic City serving iron ore mill, Fremont Co., WYOMING. Pacific Power & Light Co., 421 S. Center St., Casper, Wyo. CA 2/7/61. CD 11/16/60.

▲† **Rob. E. McKee, Gen. Contr., Inc.**, Box 1706, Santa Fe, N. M., LB **$1,617,300**, AIR ROUTE TRAFFIC CONTROL CENTER, ALBUQUERQUE, N. M. Fed. Aviation Agency, Box 90007, Airport Station, Los Angeles, Calif. BA 2/1/61. CD 1/10/61.

BUILDINGS—LB & CA

▲ **Estrin Constr. Co.**, 901 Lydia, Kansas City, Mo., CA Est. **$1,000,000**, general contract 1 story, 225,000 sq. ft., 391 x 577 ft. concrete block and brick, steel DRUG WAREHOUSE, KANSAS CITY, MO. Katz Drug Co., 1130 Walnut, Kansas City, Mo. Bob D. Campbell, 4149 Penn., Kansas City, Mo., structural engr. Wm. L. Cassell, 912 Baltimore, Kansas City, Mo., mechanical engr. BA 1/5. CA 1/31. CD 1/14/60.

▲ **Corner, Howe & Lee**, Deadwood Ave., Rapid City, S. D., CA Est. **$2,500,000**, ACADEMY and MOTHERHOUSE, RAPID CITY, S. D. Benedictine Sisters of St. Martin, Sturgis St., Rapid City, S. D. BA 2/7/61. CD 1/24/61.

▲ **Krebs Constr. Co.**, P. O. Box 1108, Houston, Tex., LB **$1,024,245**, 4 story, 57,000 sq. ft., rein.-con. frame, brick, COUNTY JAIL, GALVESTON, TEX. Galveston County, Courthouse, Galveston, Tex. BA 2/6/61. CD 1/10/61.

▲ **G. M. DeGeorge & Co., Inc.**, 3520 Montrose Blvd., Suite 227, Houston, Tex., CA **$1,250,000**, 2 story, 3 unit, 113,000 sq. ft., brick A/C APARTMENT, Garden Villa, MIDLAND, TEX. Owners, c/o Wm. Hoff & Associates, archts., 3520 Montrose Blvd., Suite 227, Houston, Tex.

▲ **Port Constr. Co.**, c/o 802 Mill Creek, Houston, Tex., Owner Builds, **$1,898,000** (first year $500,000, to complete 1½ years) 146 DWELLINGS, Crestmont Park Subdivision, **$481,000**, 37 DWELLINGS, South Park Blvd., HOUSTON, TEX.

▲ **Prichard & Tresch Bldg. Co.**, 802 Mill Creek, Houston, Tex., Owner Builds, **$1,950,000**, 150 DWELLINGS, Crestmont Park, Subdivision, **$416,000**, 32 DWELLINGS, near Palms Center, HOUSTON, TEX.

▲ **Smith Constr. Co.**, P. O. Box 796, Waco, Tex., LB **$1,193,947**, (15 bidders), general contract 5 story, bsmnt. 94,000 sq. ft., brick, rein.-con. fdn. and fr. plaster, vinyl-tile, air-conditioned HOSPITAL ADDN., WACO, TEX. Hillcrest Memorial Hospital, 3000 Herring St., Waco, Tex. BA 2/8/61. CD 1/31/61.

▲ **Hill & Moore**, 3000 Jacksboro Hwy., Wichita Falls, Tex., Owner Builds, **$1,080,000**, 60 one story, brick DWELLINGS, Meadowlake and Southwinds Addns.; **$720,000**, 40 one story, brick DWELLINGS, Meadowlake and Southwinds Addn., WICHITA FALLS, TEX.

▲ **Carl Morris & Co.**, 101 Robertson Bldg., Wichita Falls, Tex, Owner Builds, **$1,250,000**, 1 story, brick, 75 DWELLINGS, Phase 1, WICHITA FALLS, TEX.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
March 7 Oregon   March 15, 22, 23 California
STREETS AND ROADS
March 3 Arizona   March 7 Idaho, Oregon, Washington
March 15, 16, 23 California

▲† **California**—BA 3/10—U. S. Eng., 751 S. Figueroa St., Los Angeles, Walnut Creek CHANNEL IMPRVS., Charter Oak Wash to Walnut Creek Inlet Channel, West Covina, CIVENG-04-353-61-16. $4,000,000.

BUILDINGS—BA

▲ **Calif., Fullerton**—BA 3/9—St. Judes Hospital, c/o Welton Beckett & Assoc., archts., 10000 Santa Monica

(Continued on page 80)

"Advertisement"

101 Buildings Studied

Hope-Witheron Building, San Diego
Towne House, Harrisburg, Pa.
Thomas Jefferson Bldg., St. Louis
Plaza Apartment Bldg. No. 10, St. Louis
Plaza Apartment Bldg. No. 20, St. Louis
Plaza Apartment Bldg. No. 30, St. Louis
Plaza Apartment Bldg. No. 40, St. Louis
Plaza Apartment Bldg. No. 50, St. Louis
Plaza Apartment Bldg. No. 60, St. Louis
1221 Minor Building, Seattle
Manhattan Bldg., Seattle
Logan Bldg., Seattle
Mark 51 Bldg., Seattle
Carlton House, Shaker Heights, Ohio
Broadway & Austin Bldg., San Antonio
215 N. Flores Bldg., San Antonio
Bayview Office Bldg. Addn., Ft. Lauderdale
Versailles Apartments, Ft. Lauderdale, Fla.
Birch Towers, Ft. Lauderdale
Breakwater Towers, Ft. Lauderdale
Massachusetts Blue Cross, Boston
Crimson Associates Bldg., Cambridge, Mass.
Babson Bldg., Boston
University Towers, New Haven
Woodland Medical Center, Hartford, Conn.
Strawberry Hill Terrace, Stamford, Conn.
1720 West End Bldg., Nashville
Park Towers, Baltimore
Hood-Hall Bldg., Dallas
Continental Apartments, Dallas
Empire Bldg., Salt Lake City
Dunleith Manor, Kansas City, Mo.
Quality Hill Towers Bldg., 910 Kansas City, Mo
Old Security Life Ins. Bldg., Kansas City, Mo.
Fidelity Bldg., Indianapolis
Grain Dealers Mutual Ins. Co., Indianapolis
St. Paul Fire & Marine Insurance Co., St. Paul
Cheeseman Towers Apartments, Denver
777 Grant Bldg., Denver
Bankers Union Life Bldg., Denver
1710 "H" Street, Washington
1901 Pennsylvania Ave., Washington
Mercury Bldg., Washington
Premier Bldg., Washington
R. C. A. Bldg., Washington
Bender Bldg., Washington
Potomac Towers, Arlington, Va.
3900 Watson Place, Bldg. A., Washington
3900 Watson Place, Bldg. B., Washington
Railway Labor Building, Washington
City Bldg., Washington
Whispering Waters, St. Petersburg, Fla.
Union Bank Bldg., Beverly Hills, Calif.
Independence Life Insurance Bldg., Pasadena
Cornelius Plaza, Portland, Ore.
Park Vista, Portland, Ore.
Bernard Horn Bldg., Cincinnati
2300 Luray Bldg., Cincinnati
Liberty Mutual Ins. Bldg., Boston
Cornet Bldg., Clayton, Mo.
Maylee Bldg., Cleveland Heights
National Cash Register Bldg., Cleveland
The Diplomat, Shaker Heights, Ohio
1674 Meridian Bldg., Miami Beach
1919 Bay Drive Bldg., Miami Beach
Southgate Towers, Miami Beach
Hartford Federal Savings & Loan,
  Hartford, Conn.
Gateway Center No. 4, Pittsburgh
Medical Center Office Bldg., Pittsburgh
Blue Cross Bldg., Dallas
Vaughn Bldg., Dallas
Presidential Apartments, Chicago
Calhoun Terrace Apartments, Minneapolis
Imperial Apartment Hotel, Denver
Park Adams, North Arlington, Va.
First Federal Savings & Loan, St. Petersburg
Western Geophysical Bldg., Los Angeles
Signal Oil Bldg., Los Angeles
California Bank Bldg., Los Angeles
Pacific Fidelity Life Insurance, Los Angeles
Ohio River Vista Apartments, Cincinnati
411 Oak Bldg., Cincinnati
Winebrenner Haven, Findlay, Ohio
College Terrace, Brooklyn
45 E. 72nd St., New York
Bankers Trust Bldg., New York City
201 E. 15th St., New York City
The Park East, New York City
IBM Bldg., Detroit
1st Ave. & 56th St., New York City
1733-49 E. 12th St., Brooklyn
Ocean Towers, Brooklyn
Ocean Terrace, Brooklyn
345 Webster Ave., Brooklyn
American Field Service Bldg., New York City
140 E. 44th St., New York City
165 E. 72nd St., New York City
Fieldstone Dale, New York City
Bolton Manor, New York City
300 E. 51st St., New York City
30 West Broadway, New York City

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For more details on this study, write to American Bridge Division, U. S. Steel, Room 1801L, 525 William Penn Place, Pittsburgh 30, Pa.

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USS

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Division of
United States Steel

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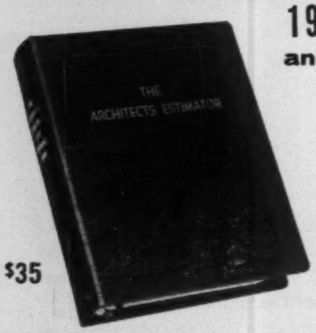

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Gives the time it takes labor to complete each unit of work on any construction project. An essential aid to your operation. A companion book to the "ARCHITECTS ESTIMATOR".

Both compiled by the foremost professional estimator, Jacques Ing Cramer Priest

(Continued from page 78)

Blvd., Los Angeles, 6 story, 56,000 sq. ft. HOSPITAL. $1,850,000. CD 12/13/60.

▲ **Calif., San Luis Obispo**—BA 3/14—State Div. Architecture, 1120 N St., Sacramento, 600 student ENGINEERING BLDG., on sloping site, California State Polytechnic College. **$2,600,000. CD 5/6/60.**

▲ **Calif., Vallejo**—BA 3/21—Vallejo Unif. School Dist., 111 Idaho St., tilt-up concrete, precast concrete Springstown JUNIOR HIGH SCHOOL, $1,400,000, Plans deposit $50; tilt-up concrete, precast double T slab roof Chief Francisco Solano JUNIOR HIGH SCHOOL, 5 bldgs., incl. gymnasium, Chabot Area, $1,400,000, Plans deposits $50. Beland & Gianelli, 1221 Monterey St., archts. Can be bid separately or combined. CD 7/18/60.

HEAVY CONSTRUCTION—LB & CA

▲† **Purvis Constr. Co.**, E. 5019 Sprague St., Spokane, Wash., CA **$3,133,946**, ADMINISTRATION and EXHIBIT BLDG. for Dpt. Commerce, Century 21 Exposition, SEATTLE, WASH. General Services Admin., 909 1st Ave., Seattle, Wash. BA 1/10/61. CD 1/12/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 2/15, ROAD,
Guy F. Atkinson Co., 10 W. Orange St., South San Francisco, Calif., LB **$2,377,704** (11 bidders), Second Phase, relocating US Hy. 40 as freeway over Donner Summit, incl. grading from ½ mi. Soda Springs to 3.6 mi. east, 2 interchanges and 1 bridge, Nevada Co. CD 1/11/61.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 2/15, ROAD,
R. A. Westbrook, Inc., & Morrison-Knudsen Co., Inc., 6431 Elvas Ave., Sacramento, Calif., LB **$5,744,593** (4 bidders), grading, paving to constr. 9.7 mi. six lane freeway US Hy. 99, Fresno Co. CD 1/5/61.

▲† **Fredericksen & Kasler**, 212 13 St., Sacramento, Calif., CA **$1,133,030** imprvt. East Twin CREEK, upstream from Marshall Blvd., Santa Ana River Basin, San Bernardino, CIVENG-04-353-61-12, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. BA 2/1, CA 2/6. CD 2/7/61, under LB.

▲ **Louis C. Dunn, Inc.**, 3101 Wilshire Blvd., Los Angeles, Calif., CA **$4,118,900** PASSENGER CARGO TERMINAL at Berth 93-A and 93-B, Los Angeles Harbor San Pedro, LOS ANGELES, CALIF. Los Angeles Harbor Dpt., City Hall, Los Angeles, Calif. BA 1/17. CD 1/24/61, under LB.

▲† **The Jordan Co.**, P. O. Box 1179, Columbus, Ga., LB **$1,606,630**, Base Bid, (7 bidders), WHERRY HOUSING REHABILITATION, IMPRVS., IFB 04-626-61-37, TRAVIS AIR FORCE BASE, CALIF. Base Procurement Office, Travis Air Force Base, Calif. BA 1/10. CD 12/20/60.

BUILDINGS—LB & CA

▲ **McGillvray Bros.**, Box 2667, Ketchikan, Alaska, and **Cole & Paddock**, Box 616, Juneau, Alaska CA **$1,119,000**, rein.-con., steel frame HIGH SCHOOL, Proj. No. Alaska 61-C-2, SITKA, ALASKA. Independent School Dist., Sitka, Alaska. BA 2/8. CD 1/26/61.

▲† **Seaview Lumber Co. (Arthur A. Danekas, W. C. Ellis and John Martin)**, 1645 St. Malo Ave., LaPuente, Calif., CA **$4,918,622**, 300 unit CAPEHART HOUSING, Mountain Home Air Force Base, Inv. 61-24, MOUNTAIN HOME, IDAHO. Procurement Office, Mountain Home Air Force Base, Mountain Home, Calif. BA 1/12/61. CD 1/18/61, under LB.

▲ **Kerr-McGee Oil Industries, Inc.**, Kerr-McGee Bldg., Oklahoma City, Okla., Owner Builds, **$2,000,000**, HELIUM PLANT, Pinta Dome, TUCSON, ARIZ. Air Products, Inc., 733 W. Broad Emmaus St., Allentown, Pa., engr. CD 1/9/61.

▲ **H. George & Sons**, Hutton Bldg., Spokane, Wash., CA Est. **$3,250,000**, 10 story, 100 x 240 ft. MOTEL, Aurora Ave. and John St., SEATTLE, WASH. E. R. Wockner, 1149 Broadway Ave. N., Seattle, Wash. W. A. Reese, 224 Dexter Ave., Seattle, Wash., archt. CD 6/13/58.

▲ **Donald M. Drake Co.**, 1600 N.W. Savier St., Portland, Ore., LB **$1,117,950**, Phase 1-B PRIMATE RESEARCH CENTER, Medical Research Foundation, PORTLAND, ORE. University of Oregon Medical School, Portland, Ore. Skidmore, Owings & Merrill, 2040 SW Jefferson St., Portland, Ore., archts. CD 3/7/58.

▲ **Diverco Constructors**, 10238 Lakewood Bldg., Downey, Calif., CA **$2,214,400**, HIGH SCHOOL, LOMPOC, CALIF. Lompoc Union School Dist., 200 South "M" St., Lompoc, Calif. BA 1/10. CD 1/16/61, under LB.

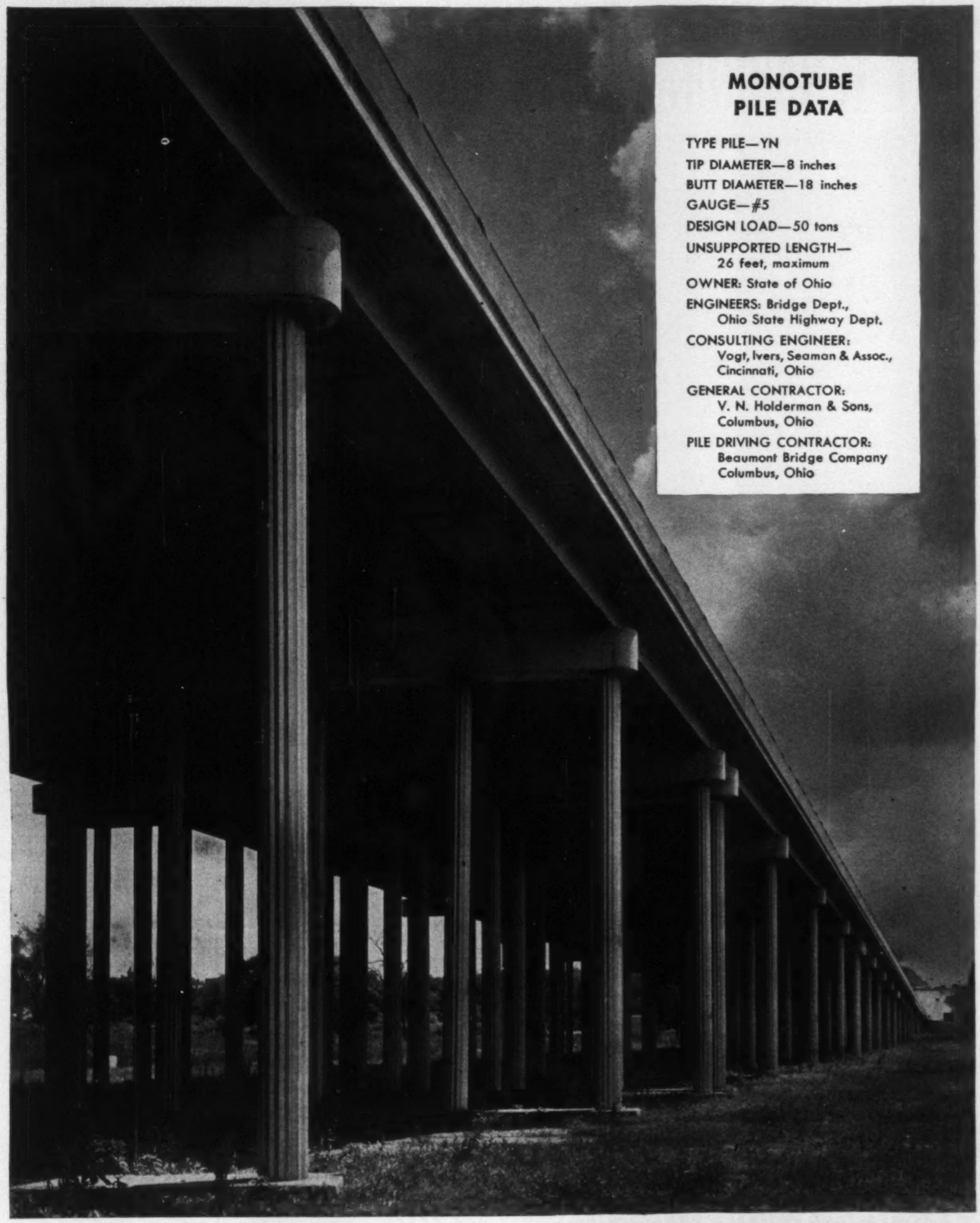
▲ **The Lummus Co.**, 2707 Weslayan St., Houston, Tex., CA, design and construct CARBON BLACK PLANT, 45 acres parallel to Hy. 6 and Southern Pacific R.R., MOJAVE, CALIF. United Carbon Co., Texas Eastern Bldg., Houston, Tex.

▲ **Theo. G. Meyer & Sons**, 200 Quint St., San Francisco, Calif., LB **$1,299,474**, (5 bidders), concrete SANCTUARY, PALO ALTO, CALIF. First Methodist Church, Hamilton Ave. and Webster, Palo Alto, Calif. Carleton A. Steiner, 2941 Telegraph Ave., Berkeley, Calif., archt.

▲ **M & K Corp.**, 519 California St., San Francisco, Calif., CA **$4,342,000**, 3 story, bsmnt., rein.-con. Southeast SENIOR HIGH SCHOOL, Mansell and Somerset Sts., SAN FRANCISCO, CALIF. City and San Francisco County, Dpt. P. Wks., City Hall, San Francisco, Calif. CD 12/1/60, under LB.

▲ **Frank Lippman**, c/o Coco Palms, Kapaa, Kauai, CA Est. **$1,500,000**, Plantation House RESORT, 25 deluxe cottages, First Increment, administration bldg.,

(Continued on page 82)



MONOTUBE
PILE DATA

TYPE PILE—YN
TIP DIAMETER—8 inches
BUTT DIAMETER—18 inches
GAUGE—#5
DESIGN LOAD—50 tons
UNSUPPORTED LENGTH—
26 feet, maximum
OWNER: State of Ohio
ENGINEERS: Bridge Dept.,
Ohio State Highway Dept.
CONSULTING ENGINEER:
Vogt, Ivers, Seaman & Assoc.,
Cincinnati, Ohio
GENERAL CONTRACTOR:
V. N. Holderman & Sons,
Columbus, Ohio
PILE DRIVING CONTRACTOR:
Beaumont Bridge Company
Columbus, Ohio

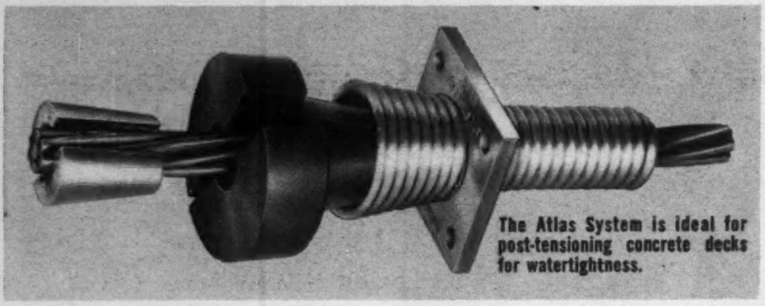
VERSATILITY plus DESIGN ECONOMY with Monotube piles. When soil conditions in Mansfield, Ohio, prohibited conventional construction in crossing low-lying land, this adaptation of a foundation supported on Monotube steel piles proved to be an economical solution.

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. The Union Metal Manufacturing Co., Canton 5, Ohio—Brampton, Ontario, Canada.

UNION METAL

Monotube Foundation Piles

NEW ANCHORAGE SYSTEM SIMPLIFIES POST-TENSIONING, CUTS COSTS


The Atlas System is ideal for post-tensioning concrete decks for watertightness.

A new and simple system for post-tensioning concrete . . . *the Atlas Anchorage** . . . cuts construction costs for prestressed concrete by eliminating several time-consuming procedures formerly necessary.

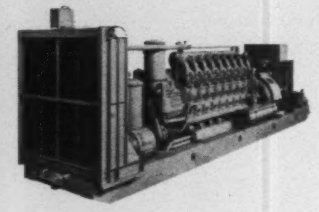
Instead of special bolts, the Atlas coil anchor and plate is solidly held in position with nails. Pockets for shims or nuts are eliminated through use of reusable rubber thimbles. This flexible anchorage or adaptable to various lengths of tendons, minimizing effects of small construction discrepancies. The basic Atlas Anchorage uses standard 7 wire strand of $\frac{3}{8}$", $\frac{7}{16}$" or $\frac{1}{2}$" diameter. Its small size allows very thin members to be post-tensioned without unsightly thickened ends or edges.

Atlas' staff of engineers are available to provide shop drawings, counsel on detailing problems and field assistance. Write today for a brochure on the new Atlas Anchorage. *Several select, exclusive area distributorships still open . . . wire for full information.*

** patent pending*

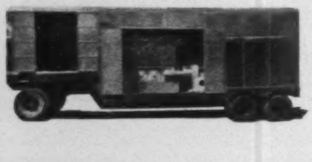
ATLAS SERVICE CORPORATION
14809 Calvert Street
Van Nuys, California

DIESEL POWER that's ECONOMICAL!



Portable and Rental Units

Diesel engine generator sets from 100 to 1100 kw, 125 to 1375 kva, completely portable, easily transported, quickly installed, designed for parallel operation, 60 or 50 cycles. A "Central Station" in itself, independent, self-contained.



Also available NOW...

Our giant 300 kw mobile power trailer unit, mounted and ready to roll, a complete plant ready for immediate operation on arrival at your plant project or town, 375 kva, any standard voltage, 3 phase, 60 cycle, suitable for parallel operation.

We stress fast delivery and service . . . since 1898!

A·G·SCHOONMAKER COMPANY, INC.
ESTABLISHED 1898

WEST COAST: Dept. A, Foot of Spring St., Sausalito, Calif., ED 2-1490
EAST COAST: Dept. A, 50 Church Street, New York 7, N.Y. DI 9-4350

(Continued from page 80)

dining room (separate), cocktail lounge (separate), HANALEI, HAWAII. Island Holiday Ltd., 2229 Kalakaua Ave., Honolulu, Hawaii. Design Group, Inc., John DeCuir & Lyle Wheeler, c/o 20th Century Fox Studio, Hollywood, Calif., archt.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 8 Ontario

BUILDINGS—BA

▲ **Ont., Strathroy**—BA 3/3—Strathroy Middlesex General Hospital Bd., Strathroy, HOSPITAL. $1,400,000. Extended date Fred J. Green 544 Talbot St., St. Thomas, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Peter Kiewit Sons Co. of Canada Ltd., A. Johnson Co. Ltd. & Poole Constr. Co., Ltd.** 10503 105th St., Edmonton, Alta., LB **$8,658,500,** upstream portion of five TUNNELS, South Saskatchewan River Dam Hillspring, ALBERTA. Prairie Farm Rehabilitation Admin., Motherwell Bldg., Regina, Sask. BA 2/9/61. CD 1/3/61.

▲ **Perini Pacific Ltd.**, 475 Howe St., Vancouver, B. C., LB **$4,720,000** Total est. $9,000,000, rein-con. SEWAGE TREATMENT PLANT, admin., power pump, maintenance bldgs., pre-aeration and sedimentation tanks, digester, sludge lagoons, 20,000 ft. effluent channel and dike, Iona Island, VANCOUVER, B. C. Greater Vancouver Sewage & Drainage Dist., 2294 W. 10th St., Vancouver, B. C. Toby & Russell, 2256 W. 12th St., Vancouver, B. C., archts. Crippen Wright Engineering Ltd., 207 W. Hastings St., Vancouver, B. C., engrs. BA 2/7/61. CD 1/17/61.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Downsview, Bids opened 1/12, BRIDGE,
McNamara Road Constr. Ltd., and McNamara Constr. Equipment Ltd., 42 Industrial St., Leaside, Toronto, Ont. LB **$1,261,527,** Rainy Lake Causeway and approach Hy. 11 (Contract 60-249) Kenora. CD 1/12/61

BUILDINGS—LB & CA

▲ **Samuel G. Macy**, 265 Laurier Ave. E., Ottawa, Ont. Owner Builds, **$1,250,000,** 11 story, steel, concrete, brick, glass APARTMENT, Albert St., OTTAWA, ONT. J. Morris Woolfson, 104 Lewis St., Ottawa, Ont., archt.

▲ **Argo Constr. Ltd.**, 3901 Jean Talon St. W., Montreal, Que., CA **$1,063,400,** 7 story, 48,000 sq. ft., concrete, rein.-con. Canadian burnt clay brick DPT. VETERANS' AFFAIRS BLDG., Queen Mary Rd., MONTREAL, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. BA 1/11/61. CA 2/3/61. CD 1/18, under LB.

▲ **Quemont Constr. Ltd.**, 6655 Cote des Neiges Rd. and **Charles Duranceau Ltd.**, 2545 Jacques Hertel St., Montreal, Que., CA **$7,333,200,** first phase, CONCERT HALL, Montreal's Place des Arts, St. Catherine St., W., MONTREAL, QUE. Sir George-Etienne Cariter Corp., 3819 Calixa-Lavalee Ave., Montreal, Que., BA 2/3/61. CD 2/9/61, under LB.

▲ **Komo Constr. Ltee**, 1500 St. Cyrille St. W., Quebec City, Que., CA Est. **$5,000,000,** 2 story, 50,000 sq. ft. SHOPPING PLAZA and OFFICE, Laurier Blvd., Ste. Foy, QUEBEC CITY, QUE. Les Immeubles Delrano, Inc., 640 St. Jean St., Quebec City, Que. Backler & Horvath, 5253 Decarie Blvd., Montreal, Que., engrs. CD 12/6/60.

▲ **C. Jobin Ltee.**, Centre Industriel No. 5, Quebec City, Que., CA Total Est. **$1,500,000,** SHOPPING CENTRE extension, Wilfrid Laurier Blvd., STE. FOY, QUE. Ivanhoe Corp., 7101 Cote St. Luc Rd., Montreal, Que. Eliasoph & Berkowitz, 5940 Queen Mary Rd., Montreal, Que., archts. CD 12/13/55.

LATIN AMERICA

BUILDINGS—BA

▲ **Argentina**—BA 4/6—Yacimientos Petroliferos Fiscales, Avda Roque Saeng Penna 777, Buenos Aires, or Argentine Govt. Oil Fields Comn., 350 Fifth Ave., New York, N. Y., U.S.A., 830 HOUSES, Pico Tiuncado and Caleta Olivia, Chubut Province. Plans deposit $6.05.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ **Jordan and Saudi Arabia**—BA 4/3—Executive Committee for Recommissioning Hedjaz Railway Line, P. O. Box 134, Damascus, Syria, REHABILITATING RAILWAY LINE between Ma'an (Jordan) and Madina Al-Munawara (Saudi Arabia) approx. 503 mi. Total cost $25,000,000. Plans deposit $35.50. Brown Engineers, International, 60 W. 55 St., New York, N. Y., U. S. A., engrs. CD 9/28/60.

BUILDINGS—LB & CA

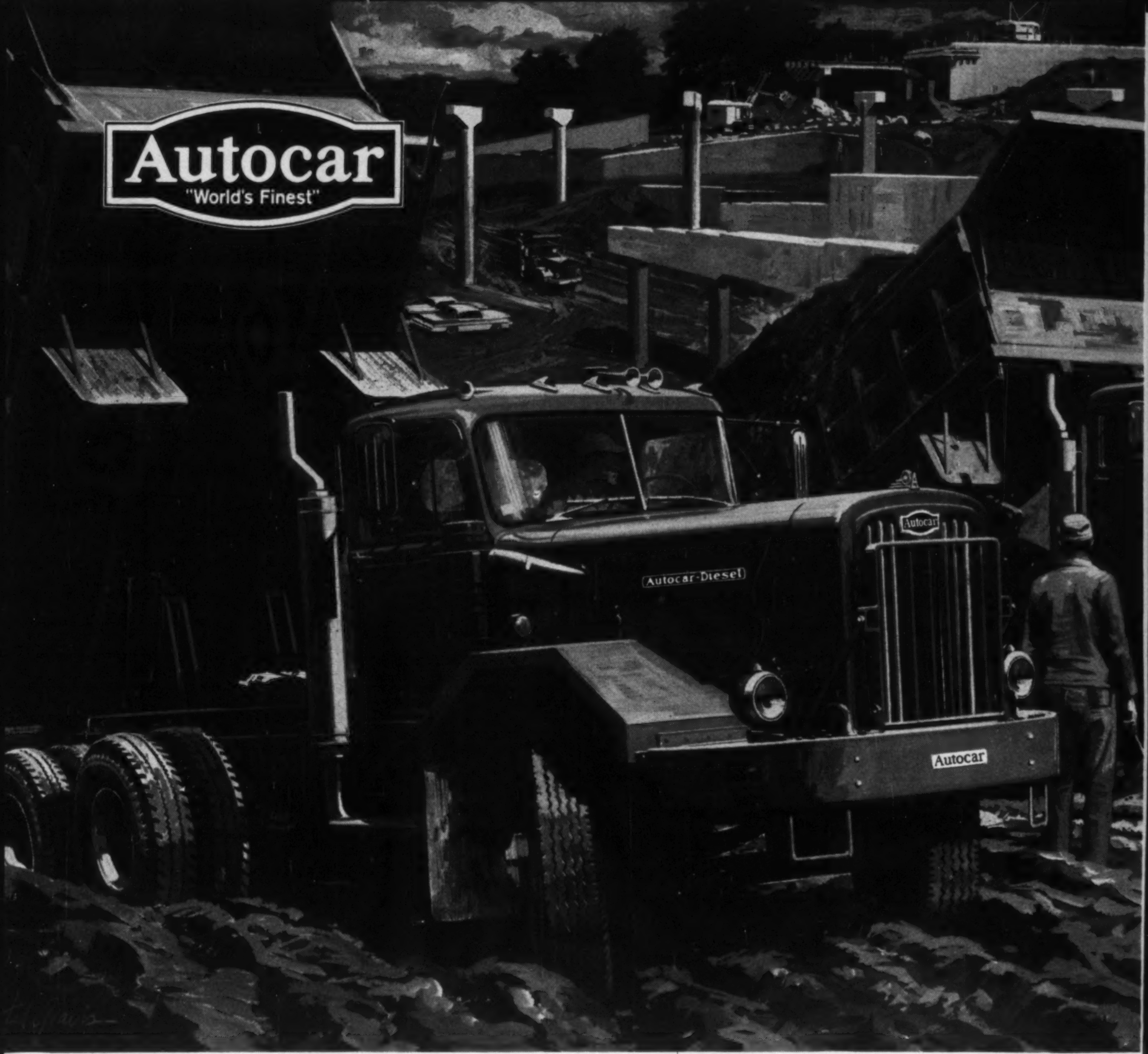
▲ **J. Ray McDermott & Co., Inc.**, Houton Club Bldg., Houston, Tex., U.S.A., CA Est. **$70,000,000** Khafji PERMANENT BASE, neutral zone, between KUWAIT and SAUDI ARABIA. Arabian Oil Co., Tokyo, Japan.

FOREIGN

BUILDINGS—LB & CA

▲ **Foster-Wheeler Ltd.**, 3 Ixworth Pl., London S.W.3, England, CA Est. **$12,000,000,** 30 long tons per year butyle RUBBER PLANT, FAWLEY, ENGLAND. Esso Petroleum Co. Ltd., 36 Queen Anne's Gate, London, S.W.1, England. CD 8/22/60.

(Proposal Advertisements see pp. 92 to 94)



PASTOR TRUCKING COMPANY, Baltimore, has just bought six more Autocars as a result of Autocar experience on the new Baltimore-to-Harrisburg Expressway. "Autocar—nothing less," says Mr. Impaciatore, president.

This job is Autocar size . . . don't think of less

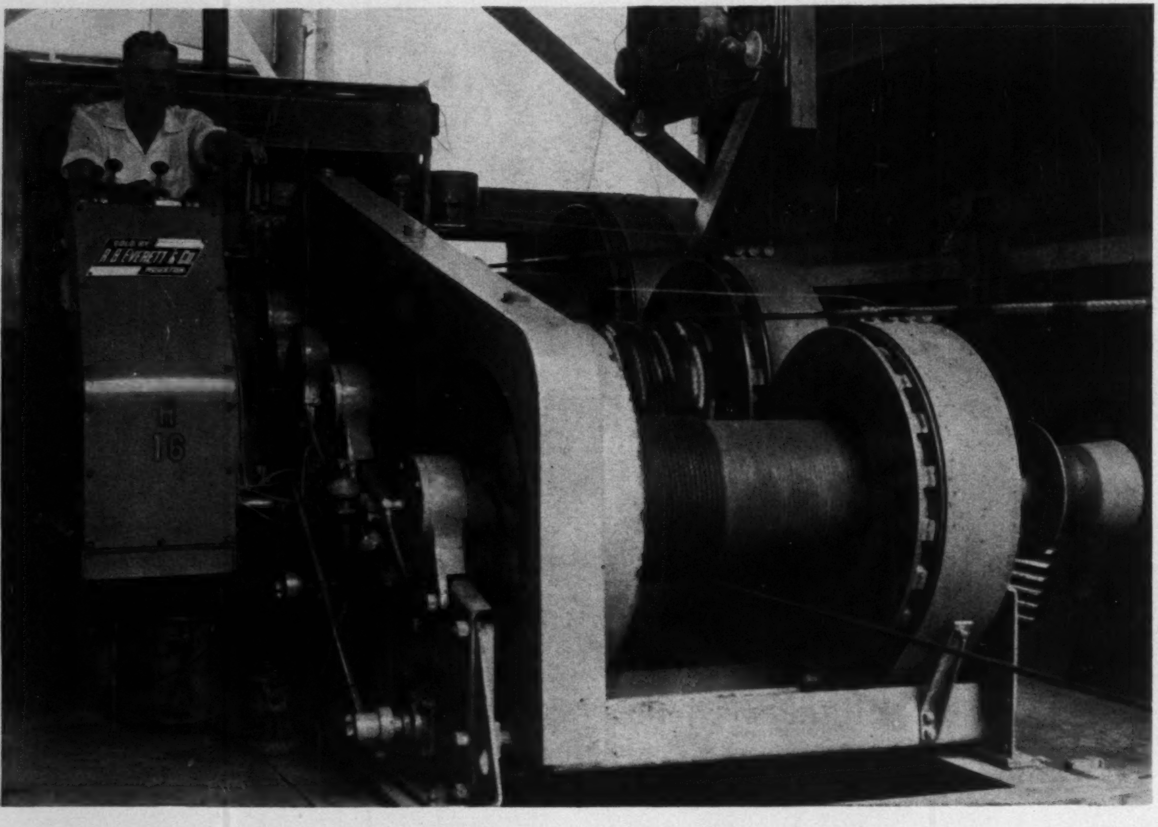
For certain jobs you either have Autocars or wish you had. Nothing less answers.

Take building an expressway like Maryland's new Jones-Falls. There's a job that really tests a truck's character. Loads are terrific. Grades are steep and there's constant shifting. The mud can even be axle deep, but to the Autocar this is still a non-stop operation. Such performance is the direct result of the custom engineering and quality in which Autocar is unsurpassed.

When you have Autocar-size jobs, there's no substitute for the "World's Finest." It's profitable to have Autocars on road construction projects. Why be sorry you don't? WHITE-Autocar comprehensive service throughout the United States.

Autocar
"World's Finest"

Division of
The White Motor Company
Exton, Pa.



with Safety and Accuracy . . .

Clyde Hoist makes "deposits" at Houston's First City National Bank

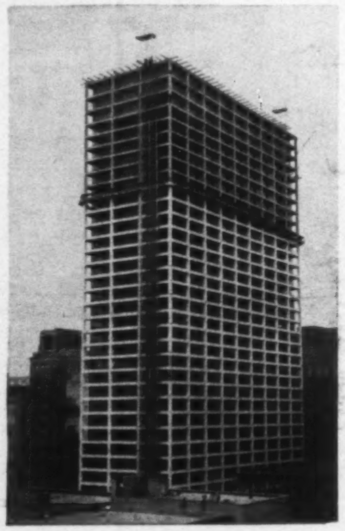
A major portion of the construction materials 'deposited' in the First City National Bank were speedily spotted with this Clyde Frame-6 Hoist . . . hoists noted around the world for dependable, efficient service.

Clyde's reputation is born of many 'plus' features that permit operator to hoist and spot loads with ease and accuracy. Large diameter, extra-capacity brakes handle maximum loads by light toe action. Clyde's internal expanding, band friction clutches give smoother, more positive full-load service.

Comparison of construction features shows why Clyde Hoists have had a reputation for superiority for more than half a century! All steel bed and side frames, high strength spur gears, anti-friction bearings throughout are but a few of the many extra values built into all Clyde Hoists . . . from 3,000 to 80,000 pounds line pull.

There is a Clyde Hoist to fit your requirements . . . to exceed your expectations! Send for Hoist Bulletin 34.

The 32 story First City National Bank adds an impressive landmark to the Houston skyline. Contractor; W. S. Bellows Construction Corp.



CLYDE

A SUBSIDIARY OF RIC REPUBLIC INDUSTRIAL CORPORATION

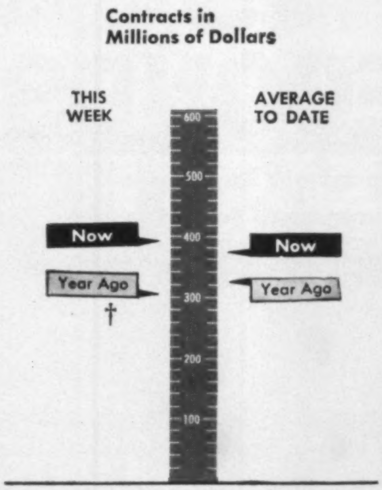
CLYDE IRON WORKS, Inc.

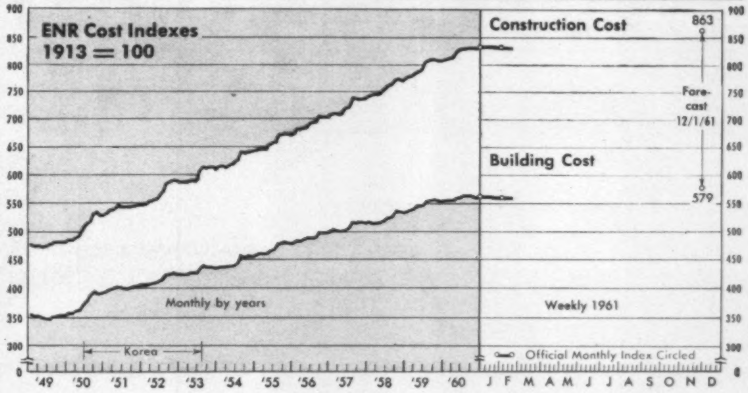
Established 1899
DULUTH 1, MINNESOTA

HOISTS : DERRICKS : WHIRLEYS : BUILDERS TOWERS
UNLOADERS : CAR PULLERS : ROLLERS

Construction Scoreboard

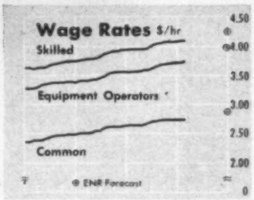
This Week...

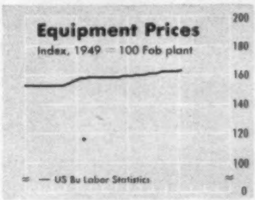


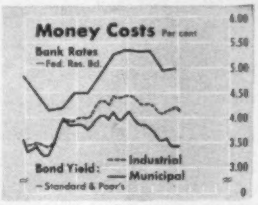


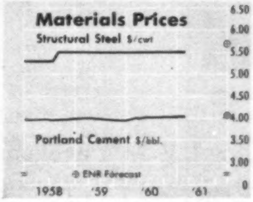
ENR INDEXES (1913=100) 20-Cities Average	Week of Feb. 16 1961	% Change from Jan. 19 1961	% Change from Feb. 18 1960
Construction Cost	834.05	−0.04	+2.6
Building Cost	562.71	−0.04	+1.4

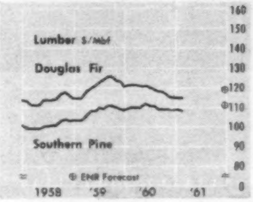
To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

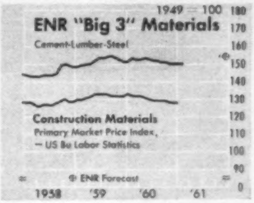












AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week (millions)	Cum. 8 wks 1961 (millions)	Chge '60-'61 %
All Heavy Construction	$397.2	$3,020.2	+13
By Ownership			
PRIVATE	225.1	1,531.5	+6
PUBLIC	172.1	1,488.7	+22
State & Municipal	145.2	1,165.0	+26
Federal	27.0	323.7	+10
By Type of Work			
PUBLIC			
Waterworks	6.0	51.8	+24
Sewerage	17.8	95.2	+11
Bridges*	11.4	82.9	−18
Highways	58.5	540.1	+51
Earthwork, Dams & Waterways	4.6	78.8	−23
Buildings:			
Excl. Housing	37.0	384.0	+50
Housing	17.5	92.1	+11
Unclassified	19.4	163.9	−14
PRIVATE			
Buildings:			
Mass Housing	101.3	599.2	−13
Commercial	37.5	317.7	+13
Industrial	75.5	537.9	+32
Unclassified	10.7	76.6	+1

* Includes Private bridges † 4-day week

NOTE Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Feb. 16 (millions)	Cum. 7 wks (millions)	Chge '60-'61 %
Corporate Securities	$50.9	$230.0	−25
State and Municipal:			
All Except Housing	57.3	797.0	−21
Housing	0	1.6	+129
Federal Loans	.6	30.9	+329
Federal Aid	0	0	0
Total Nonfederal	$108.8	$1,059.4	−20
Federal Appropriations:			
Projects in U. S.	0	0	0
Outside U. S.	0	0	0
Total New Capital	$108.8	$1,059.4	−20

ENR COST INDEXES IN 22 CITIES, 1913=100

	Construction Cost	Construction Cost Percent Change from last		Building Cost	Building Cost Percent Change from last	
City	1961	Month	Year	1961	Month	Year
Atlanta	652.78	0	+2.2	504.08	0	+0.2
Baltimore	754.18	0	+2.0	560.02	0	+1.3
Birmingham	674.37	0	+3.3	525.80	0	+1.7
Boston	851.98	+0.2	+2.5	575.55	+0.3	+2.3
Chicago	905.65	−0.6	−1.6	580.71	−1.0	−0.4
Cincinnati	838.40	0	+2.9	544.18	0	+1.0
Cleveland	946.12	+0.2	+3.0	563.27	+0.3	+2.0
Dallas	640.32	0	+6.0	527.29	+0.2	+7.3
Denver	756.22	0	+1.7	553.43	0	+2.1
Detroit	963.54	0	+2.0	605.32	0	+1.2
Kansas City	812.88	0	+2.0	555.43	+0.4	+0.4
Los Angeles	900.59	0	+3.4	561.09	0	+1.0
Minneapolis	897.84	0	+4.3	575.71	0	+1.0
New Orleans	654.27	0	+2.0	507.84	0	−1.3
New York	1,058.97	+0.3	+5.0	663.13	+0.5	+3.0
Philadelphia	830.49	0	+5.0	589.86	0	+1.7
Pittsburgh	885.14	0	+1.7	625.80	0	+3.0
St. Louis	900.86	0	+2.1	581.55	0	0
San Francisco	875.55	−0.3	+3.0	552.76	−0.4	0
Seattle	882.90	0	+3.0	507.31	0	+1.0
U. S.—20 Cities' avg.	**834.27**	**−0.1**	**+3.0**	**562.93**	**0**	**+1.3**
Montreal	648.79	0	+3.0	464.48	0	+1.2
Toronto	689.98	0	+2.1	492.11	0	−1.2

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Ideas That Could Sell Houses

- **The 'condominium plan', new to the U. S., offers advantages of co-ops with individual ownership.**
- **Insurance of mortgage payments against sickness, accident or unemployment is another sales plan.**

Homebuilders, building materials manufacturers and some producers' trade associations are experimenting with instruments that could do much to return the ailing housing market to health.

Recent innovations are both technical and financial. They have been formulated to attack the physical, financial and psychological afflictions of the homebuilding business.

Among the developments are a test run in the U.S. for condominium ownership, mortgage-payment insurance against unemployment or sickness (ENR Feb. 9, p. 17), and "over-insulation" of individual houses (ENR Jan. 19, p. 75).

• **The condominium plan**—The condominium principle of ownership, although new to this country, dates back to Roman Empire days of 600 B. C., and has been commonly used for several years in Latin America and Europe.

The condominium combines the advantages of cooperative maintenance of supporting building-facilities with those of individual ownership. It does, however, eliminate the cooperative's disadvantage of mutual financial liability.

In a cooperative, a participant owns shares in a corporation, which represent a proportionate interest in a building or group of buildings. As a stockholder, an individual is entitled to occupy a given living unit in the building under the terms of a long-term proprietary lease.

Monthly payments cover mortgage amortization and interest, taxes, insurance, maintenance and operation. Such payments will vary according to the amount or type of space occupied. However, each occupant is responsible for the total fixed costs of the building.

If, for example, a 10-unit apartment building is fully occupied, the payments of each "owner" must equal the sum of the amount required to cover all overhead and operating costs of the property. Should one or more of the 10 owners be unable to maintain his payments, the others must assume the financial share of those who defaulted. If this cannot be done, the cooperative will go the way of any other financially stricken corporation—bankrupt.

This is not the case in a condominium. Each unit has its own mortgage. Taxes are individually assessed. Insurance is carried by each owner. The only shared, or cooperative, payment is that covering maintenance of common facilities, such as halls, stairs, lobbies and walks. Otherwise, in a condominium, rights of ownership are the same as those in a single family house.

The first condominium operation here is getting under way in Richmond, Va. It is sponsored by a partnership of Reynolds Metals Co. and Viking Development Co. of Virginia Beach, Va. The Federal Housing Administration is participating in the experiment as insurer of the mortgages that will be taken on each of the living units as they are sold.

The development will contain 98 living units priced at $10,000 each. Mortgages and monthly payments will be arranged the same way as houses sold individually under more conventional sales methods. In the Richmond case, however, each buyer will pay an additional $2.50 a month to maintain the development's common grounds—parking areas, sidewalks, landscaped gardens and swimming pool. The partnership will initiate the financing for the maintenance of the common areas, using a local bank as executor for the maintenance funds. When the tract is sold out and firmly established, this operation will be turned over to a committee of residents in the development.

None of the participants in the Richmond experiment contend that the condominium is the final or best solution to boosting the housing market. They say it is a tool that must be tried. Because the condominium is not burdened by the disadvantage of mutual financial liability—a condition that many believe has discouraged cooperatives except in a few major cities—the experimenters hope this financial instrument will catch on.

• **Mortgage insurance**—In the Midwest, the Home Builders Association of Chicagoland will introduce this week a plan aimed primarily at overcoming buyer-resistance that may stem from uncertainty about the economy—insurance against loss of the house because of unemployment. As an additional incentive, the policy will protect the investment in case of accident or sickness.

The idea was conceived by officials or Celotex Corp. of Chicago who then presented the idea to Chicago's Continental Casualty Co. This company concluded that an actuarially sound insurance policy could be provided, and agreed to sell them to interested builders.

Top executives of the building materials manufacturer thought of the plan after seeing a study of the housing market sponsored by the National Association of Home Builders. It showed that the biggest obstacle to closing a home sale last year was lack of confidence in the national economy. The officials thought that insurance would possibly quell fears of prospective homebuyers that they would be unable to maintain their monthly mortgage payments should unemployment, sickness or accident occur.

Officials of both NAHB and the Chicago builders organization were told of the plan and agreed to a pilot test in Chicago. It's now estimated that 10,000 housing units may be brought into the experiment. Based on last year's housing starts in the Chicago area, this would represent about 38% of Chicago's private housing starts.

Under the plan, a builder will pay the policy's full cost in advance at the time of the sale. The premium will be equal to 6% of the monthly mortgage payment. If a new home buyer's mortgage calls for payments of $100 a month, the premium would be $6 per month, or a total of $72 for one year of coverage. In 1959, the average monthly payment was $115.48 on houses bought with a mortgage insured by the Federal Housing Administration, according to the latest available figures from the FHA.

A builder must agree to buy an unemployment insurance policy on each house in his tract at the time it is sold. And there are no responsibilities or requirements set for buyers aside from normal credit and financial qualifications. The only buyers who would not be covered by such insurance are the self-employed or those working for a company employing fewer than six persons.

Under the policy, a homeowner who is laid off would have his monthly payment paid by the insurance company for as long as six months of continuous unemployment. In case of accident or sickness, payments would be made for up to five years. The insurance will cover the entire monthly payment—mortgage interest and amortization, taxes and fire insurance.

• **Cost insulation**—The National Mineral Wool Insulation Association developed a heating index that is based on using more insulation than required by FHA's minimum Property Standards. Installation of more insulating material would lower the operating costs of the house, which would then lower the income required to buy a given house. The trade association says reducing income requirements, will broaden the potential market by financially qualifying a larger number of families.

Order Decline Seen

Equipment makers expect 8% drop in '61 sales

Some equipment manufacturers are more pessimistic about the outlook for new orders for construction and mining equipment than they were three months ago. They now expect this year's new orders volume to drop 8%.

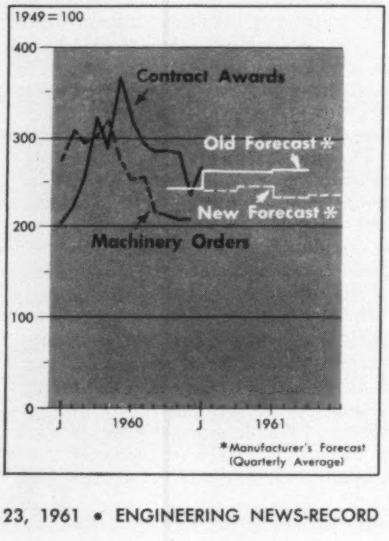
This is the consensus of a sample of the industry that cooperates with the McGraw-Hill Economics Department, which computes the composite forecast of new orders as well as the actual monthly values based on reports of new orders received.

An 8% drop in 1961-order volume would pull the market far below the 1959 record posted by the New Orders Index for Construction and Mining Equipment. This is because the new decline would be added to the 11% slide in 1960, as measured by the index.

For each of the quarters of 1961, the manufacturers as a group look for order volume to produce the following:

- First quarter up to 242. This would be 16% higher than the low final quarter of 1960, but 17% short of the first quarter of 1960.
- Second quarter up 2% to 247. This would be 17% under one year ago.
- Third quarter down 5% to 235. This would be only 2.5% under the third quarter of 1960.
- Fourth quarter up a bit to 238. This would be the first quarter in 1961 to show a year-to-year gain, up 14% from the final quarter of 1960. However, this gain would mainly reflect the very low volume of orders in late 1960.

The monthly values in the fourth quarter of last year were: October, 215; November 208; December, 209.



*Manufacturer's Forecast (Quarterly Average)

Los Angeles insurance company starts on . . .

A $25-Million Buildings Complex

Occidental Life Insurance Co. will start work shortly on a $25-million construction and modernization project in Los Angeles, its headquarters city.

The new-construction phase calls for a 25-story office-building tower, a nine-story service building and a five-story parking garage. The existing nine-story headquarters building, adjacent to the site of the new buildings will be completely remodeled inside and out. When completed, the office complex will contain more than 1 million sq ft of space.

First phase of the job will be construction of the nine-story service center, which will adjoin the existing office building, and the garage. The service center will house departments of the electronic data processing departments and operations allied with those processes. This structure, to contain 240,000 sq ft, is scheduled for completion in January 1963.

The first two floors will be set back from the street, but those above will extend up from the sidewalk line. This will provide a covered promenade for pedestrians.

Last phase of the operation will be construction of the 25-story tower, which will contain 500,000 sq ft. Starting and completion schedule for this building have not yet been determined.

Pereira & Associates, Los Angeles, are the architects for the entire job, including the remodeling phase. General contractor is William Simpson Construction Co. Brandow & Johnson are the structural engineers, and Ralph E. Phillips, Inc., is the mechanical and electrical engineer. The contractors and engineers are Los Angeles firms.

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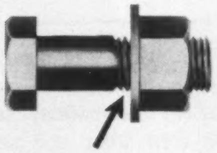
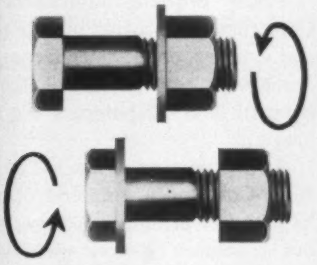
Old Type High-Strength Bolt



No more threads in shear plane. Bigger sheer area; higher working stresses.



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Fast, easy installation: Can be inserted by hand in standard oversize holes, even when holes are out of line by 1/16".

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The pictures here tell the story in greater detail. And remember, Sheffield High-Strength Bolts meet fully tested and approved designs of AISC and Research Council on Riveted and Bolted Structural Joints; Backed by Sheffield's quality control and reputation for the best in bolts since 1888. For still more information, get in touch with your nearest Sheffield office.

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There's Something New Under the

Several key organizations representing labor and management in the construction industry came together in the holiday sun of Miami last week. Out of their joint and separate meetings came a glimmer of hope for a holiday from strikes in the construction industry. These were the main developments at the mid-winter meeting of the AFL-CIO Building and Construction Trades Department.

- **New disputes adjustment plan**—The National Constructors Association and the AFL-CIO Building and Construction Trades Department put the finishing touches on a new National Plan for strike-free settlement of labor disputes on big industrial construction projects.
- **CIJC coming of age**—The Construction Industry Joint Conference, founded only two years ago, held its first full meeting. It kept its proceedings private, but said that it was making progress toward its goal of serving both the industry and the public.
- **No strike pledge for missile bases**—The construction unions pledged that local unions working on missile bases will "exhaust all available procedures for peaceful settlement" of labor disputes and then secure permission from their parent union before causing any work stoppage.
- **Sharper tool for jurisdictional disputes**—In an unusual meeting, the National Joint Board for the Settlement of Jurisdictional Disputes took steps to see that the job of making work assignments stays in the hands of the people most directly concerned.

Taken together these efforts show an increased disposition on the part of the construction industry to consider itself an interdependent economic unit whose prosperity depends on channeling the efforts of its different employer groups and unions into common and constructive approaches to mutual problems.

I. Strike Prevention Plan

The National Constructors Association and the AFL-CIO Building and Construction Trades Department have taken a long step toward promoting labor peace and productivity by adopting a nationwide plan for strike-free settlement of labor disputes on industrial construction projects. It is called the National Disputes Adjustment Plan and was informally known during its evolution as the "single contact" plan.

The plan, which utilizes the full concept of labor-management communications, bans strikes, picketing, work stoppages, and lockouts on all jobs of NCA members until the union or unions involved in the dispute have exhausted all available grievance procedures, including those previously in existence and those now established for the first time. Basically, the umbrella-like plan superimposes a new five-phase piece of settlement machinery on top of all the grievance procedures that may exist for the settlement of any particular dispute under applicable agreements, such as local, national or project labor contracts. It can lead, on a voluntary basis, to final and binding arbitration. Local wage negotiations and jurisdictional disputes do not come within its jurisdiction.

The master key to the plan is regular and systematic communications between the NCA members and local and international union representatives.

NCA president H. E. Lore expressed the hope that the plan will help convince major industrial concerns that their construction projects, if designed and built by NCA members, will proceed without interruption and within their cost estimates.

Following approval of the plan by the Executive Council of the Building and Construction Trades Department in Miami last week, department president, C. J. Haggerty said the assurance it contains against strikes and lockouts should have a stabilizing influence on the industry and should promote more jobs for union construction workers. This is the first time, he noted, that the department has entered into such a labor-management program.

The employer group that developed the plan with the building trades is composed of 28 internationally known engineering and construction firms primarily engaged in the design and construction of petroleum refineries, steel mills, chemical plants and power generating facilities. NCA, since its inception in 1946, has worked toward the continuing improvement of labor relations in field construction work.

The new national plan in large measure compliments the construction industry's 10-point work practices code which NCA helped the building trades formulate. By serving as a vehicle for the removal of irritating problems on the job, it is expected to increase productivity and help curb the accumulation of unnecessary labor costs. Some close to the plan's development said its salutary effect on construction costs should significantly improve the competitive position of union contractors in open shop areas. NCA approved the plan in January.

The plan essentially represents a dual approach to labor problems and both approaches are keyed to the concept of effective labor-management communications. One approach is preventative, the other is remedial.

The preventative phase embraces full, formal and systematic use of pre-job conferences to anticipate and solve labor problems before they generate costly disputes. It also embraces the use of general job conferences whenever advisable during construction.

The remedial aspect of the plan consists of disputes procedures, the cornerstone of which is the use of a "single contact" trouble shooter on each side. Each international union will name a single contact or representative who will serve on a permanent basis. Each NCA member will do the same and these are the men who will form two-man trouble shooting teams for disputes that arise, the pairing off depending upon whose job is affected and what union or unions are involved.

Under the disputes procedure attempts at settlement will move pro-

Miami Sun: Hope for Labor Peace

gressively from job site, to local grievance machinery, to the "single contact" teams, to arbitration or other procedures available under applicable labor contracts. If all these fail, the fifth and final step—and the one that does not apply unless voluntarily accepted—is final and binding arbitration by a new joint National Arbitration Board.

The plan specifically provides that "there shall be no strike, picketing or work stoppage" while a dispute is being processed. And the appropriate "single contact" team is charged with policing of the mandate.

The national plan has been under discussion for several years and under active consideration since last May. The final thrust for its adoption gained some of its momentum from the successful use of four-way labor management communications in the NCA-initiated Gulf Coast labor program (ENR Dec. 1, 1960, p. 117).

II. CIJC's Frontier

The Construction Industry Joint Conference looked in the mirror last week and saw a debutante who still wears braces on her teeth.

Despite her shortcomings she scored herself high on effort and promise and sent word back to Washington through Under Secretary of Labor Willard Wirtz that she stands ready to help the Administration promote its goal of labor-management peace and efficiency.

The occasion was the first full meeting of CIJC since its organization meeting in April 1959. The meeting was held in conjunction with the mid-winter meeting of the AFL-CIO Building and Construction Trades Department.

Mr. Wirtz appeared as a guest. The invitation, initially extended to Labor Secretary Arthur Goldberg, was intended to give the new Administration a chance to see what the labor-management conference of the nation's biggest industry is like and to get to know the top union and employer members of the industry better.

Prior to last week's Miami meeting CIJC was feeling the disturbing force of the traditional cross currents within the industry. Members of some of the participating employer associations questioned whether they are getting enough return on the time and money they have invested. Some were openly disenchanted with CIJC's lack of progress. Others said they were apprehensive about the direction or lack of direction of CIJC. And some still seemed to be confused about what CIJC is, or pretends to be, or should be.

Later, John T. Dunlop, in summarizing the results of the meeting, said CIJC is still in business as a continuing labor-management forum "to promote the welfare of the building and construction industry in the public interest, and to preserve and promote the contract method in construction." The report of the administrative committee, he explained, was accepted and the budget for next year was approved.

CIJC was born in Miami two years ago, was organized the following April and has apparently suffered growing pains ever since.

Its makeup is about as diverse as it could be. Participating members include the 18 international AFL-CIO building trades unions and the leading national associations of general and specialty contractors.

The conference functions through an administrative committee formerly composed of eight union and eight employer representatives. The number was increased last week to 12 from each side. E. T. Kelly, labor relations director of Associated General Contractors, and Vincent F. Morreale, general counsel of the laborers union, are the management and labor secretaries. Mr. Dunlop is impartial chairman. The administrative committee tries to meet weekly in Washington. It has had about 62 meetings all told.

Mr. Dunlop and Messrs. Kelly and Morreale took the position last week that the CIJC is not ready to discuss its activities publicly. Formal and specific announcements on what it is doing and what it has done, or not done, Mr. Dunlop said, would be "premature."

CIJC's big trouble, apparently, is trying to find and tie together the common threads in a diversified, fragmented factionally divided and often feuding industry. Mr. Dunlop describes this as trying to create "a definite sense of an industry" out of an industry that has existed only statistically. He said a "great deal of progress" has been made and the outlook is promising.

What is important, he emphasized, is that CIJC has stimulated thinking within the construction industry toward means of settling disputes without strikes and litigation. And it has created a forum, he said, in which all segments of the industry can promote their total interest and the public interest by working together on common problems. Among CIJC's professed objectives is "improved performance and productivity" by contractors and workers.

In this sense, Mr. Dunlop said, the construction industry was "ahead of the times" when it formed CIJC. And through the CIJC, he suggested, the construction industry is trying on an industry basis to do about what Presidents Eisenhower and Kennedy and Labor Secretaries Mitchell and Goldberg have urged labor and management to do on a multi-industry basis.

III. Peace at the Bases

From the mid-winter meeting of the Executive Council of the AFL-CIO Building and Construction Trades Department came assurance of the department's full cooperation in speeding up the national missile program.

In a policy statement aimed at reducing if not eliminating strikes at missile bases, it made this pledge:

"No strike, picketing, or work stoppage shall be undertaken on any missile projects by any local union without complete exhaustion of all available procedures and methods for the peaceful settlement of the dispute and the prior authorization of the general president of the national or international union with which the local union is affiliated."

The policy statement, announced by department president C. J. Haggerty, had the council's unanimous approval.

Mr. Haggerty said that the policy statement, which is effective immediately, "should have a great restraining effect" on spontaneous strikes, which have been so troublesome in the past.

The action is the first to be taken by any labor organization in response to President Kennedy's evaluation of the urgency of the situation that exists in the missile program.

"The Building and Construction Trades Department and the affiliated national unions," Mr. Haggerty said, "will use every means within the limits of their power to implement and insure the success of the policy."

Mr. Haggerty pointed out that the policy statement does not abrogate the right to strike.

Only time will tell how effective it will be. The record shows, for example, that a stronger no-strike commitment in the National Joint Board agreement has by no means eliminated jurisdictional work stoppages, and the three-year-old policy statement known as the "Ten Commandments" for elimination of wasteful work practices in the construction industry has not developed very deep roots.

Last week's statement of policy is not an agreement with a government or military agency or national defense contractor. It is simply a voluntary, unilateral pledge with no quid pro quo except that which flows to all citizens of the nation from a strong and effective defense posture.

The no-strike policy calls for full compliance at all levels of the building trades with all available local and national procedures for the settlement of labor disputes without interruption of construction work. It specifically includes compliance with National Joint Board procedures in cases involving jurisdictional disputes.

Mr. Haggerty explained that the mandate to exhaust existing remedies embraces not only local and national agreements but also project agreements. It also includes, he said, full use of the labor trouble-shooting facilities that have been established by such federal agencies as the Corps of Engineers and the Air Force.

The policy statement also provides that all state and local building and construction trade councils are forbidden, as a matter of policy, from recognizing, aiding or supporting any strike, picketing, or work stoppage by any local union on missile bases.

Although the Miami statement is non-contractual and legally uninforceable, it does add up to more than moral persuasion or a call to patriotic duty, according to Mr. Haggerty. It places on Mr. Haggerty himself and on each of the general presidents the affirmative obligation of implementing it.

This, Mr. Haggerty said, primarily means two things: One is the exertion of every effort to obtain peaceful settlement of disputes before a strike can be authorized by a general president; and the other is the use of appropriate disciplinary action against any union that violates the policy declaration.

IV. In the Family

Labor and management in the construction industry are taking another look at the industry's voluntary machinery for the settlement of jurisdictional disputes. The principal aim is to minimize the chances of letting the job of making work assignments fall into the hands of non-construction people.

Union and employer representatives had a chance to air their criticisms and suggestions on the present handling of jurisdictional disputes. Out of the meeting may eventually come some procedural changes in the National Joint Board for the Settlement of Jurisdictional Disputes and a wider understanding of the need to make the board's operations as productive and efficient as possible.

The rather unusual meeting was sponsored by the negotiating committee that represents the 18 international AFL-CIO building trades unions and the general and specialty contractor groups that go to make up the Joint Board.

A subcommittee was appointed to prepare a consensus of the meeting. Its report, due next month, may lead to formal recommendation of changes in board procedure. Rotation of members on the board and greater use of hearing panels are two areas that may receive special emphasis according to present indications. The hearing panels are part of the board's present appellate machinery and also have the power to make national decisions.

The basic problem the industry faces is this: Although the industry is making steady progress in its voluntary efforts to free the industry from the headaches of jurisdictional disputes, the progress may not be enough.

There are two principal reasons for this:

- With construction volume on the increase and with the rapid development of new tools and equipment, as well as new applications of old ones, the incidence of jurisdictional friction between the building trades is bound to increase.
- Under a U.S. Supreme Court decision handed down in January, the National Labor Relations Board must, on request, step in and decide unsettled jurisdictional disputes on their merits. This means that the construction industry runs the risk of forfeiting its right to control its own work assignments to the extent the Joint Board fails to achieve its twin goals of voluntary settlement and elimination of jurisdictional work stoppages.

In his annual report on the board's operations for 1960, Joint Board chairman Richard J. Mitchell noted an insignificant increase in the number of jurisdictional stoppages reported to the board over the year and a decrease in the number of picket line actions that occurred. Although his general conclusion was one of "progress," he urged members of the industry to comply more fully with Joint Board procedures "in both letter and spirit."

OFFICIAL PROPOSALS

Bids: March 9, 1961

Walt Whitman Bridge Contract No. P-15

DELAWARE RIVER PORT AUTHORITY
of the
COMMONWEALTH OF PENNSYLVANIA
and the
STATE OF NEW JERSEY
Administration Building
Camden, New Jersey

Sealed bids will be received for constructing concrete medial barriers, erecting signs and sign bridges, and associated work for the Walt Whitman Bridge Approaches, Philadelphia, known as Contract No. P-15, at the office of the Director of Engineering of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey, until 2:00 P. M., Eastern Standard Time, Thursday, March 9, 1961, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for the bidders is given in the Contract Documents and Specifications for this contract, which may be obtained upon deposit of $10.00, which will be remitted upon receipt of bid or the return in good condition of the copies so taken, within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $15,000, payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, together with a financial statement and a list of comparable work successfully completed, all of which must not be enclosed with the sealed bid but handled in separately. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received, to reject any or all bids and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
C. H. McWILLIAMS
SECRETARY
2/8/61
MEC

District of Columbia—Highway Construction—Dept. of Hwys. & Traffic, D. C., Feb. 3, 1961. NO. CAPITOL ST. IMPROVEMENTS GRADE SEPARATION AT NEW YORK AVE. AND INCIDENTAL WORK PIERCE ST. TO "P" ST., FEDERAL AID PROJECT NO. F-7(14), Invitation No. C-611-H, consisting of approx. 16,500 sq. yds. reinf. portland cem. conc. base 10"; 1,820 cu. yds. Class BB concrete for walls; 17,000 cu. ft. Class B stone masonry; and 192,000 lbs. Structural Steel. (Wage rates have been predetermined by the Labor Dept.) Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Div., Procurement Office, D. C., Room 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $30.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EST, Mar. 2, 1961, in Rm. 424, 499 Pa. Ave., N.W.

District of Columbia—Building Construction—Dept. of Bldgs. & Grounds, D. C., Feb. 3, 1961. CONVERSION OF OLD PSYCHIATRIC BUILDING, D. C. GENERAL HOSPITAL, 19th and "C" Sts. S.E., Wash., D. C. (Invitation No. C-6181-B). (Wage rates have been predetermined by Labor Dept.) Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Rm. 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $100.00 per set, payable to D. C. Treasurer, (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EST, March 16, 1961, in Rm. 424, 499 Pa. Ave., N.W.

OFFICIAL PROPOSALS

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Bids: March 9, 1961

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACT NOS. R-88A, R-88B, R-88C, R-88D, R-88E AND R-88F

Proposals are invited for Contract Nos. R-88A, R-88B, R-88C, R-88D, R-88E and R-88F which involves the construction of an addition and alterations to the present Service Building of the New Jersey Turnpike Authority, at Service Area 10S in Woodbridge Township, Middlesex County, New Jersey as follows:

Contract No. R-88A—General Construction
Contract No. R-88B—Structural Steel
Contract No. R-88C—Heating, Ventilating, Refrigeration & Air Cond.
Contract No. R-88D—Plumbing
Contract No. R-88E—Electrical
Contract No. R-88F—Kitchen Equipment

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock, Eastern Standard Time, on the morning of March 9, 1961, at which time and place said proposals will be publicly opened and read.

Contract documents may be examined during office hours on or after February 16, 1961, at the office of the Authority, and will be furnished upon payment of Ten Dollars ($10.00) for each set, not refundable.

NEW JERSEY TURNPIKE AUTHORITY
Joseph Morecraft, Jr., Chairman
February 9, 1961
R-88

Bids: February 28, 1961

Government of Iran
Khuzestan Development Service

DEZ PILOT IRRIGATION AREA
CIVIL ENGINEERING CONSTRUCTION
REQUEST FOR QUALIFYING APPLICATIONS

The Khuzestan Development Service, (the Iran Agency of Development and Resources Corp., New York), acting for and on behalf of the Khuzestan Water and Power Authority, an Agency of the Government of Iran, will consider applications from eligible Civil Engineering Constructions Concerns to qualify for inclusion on Bidder list(s) intended for use in the solicitation of tenders for the construction of Works in the Dez Pilot Irrigation Area. These Works are part of the Dez Project in Iran.

The presently planned Works in the Dez Pilot Irrigation Area consist of:

(a) The Construction of Roads.
(b) The Construction of Major Irrigation Canals and Appurtenant Structures.
(c) The Construction of Major Hydraulic Structures such as Head Works, Regulators and Main Bridges.
(d) Landlevelling, Minor Irrigation Ditches, Minor Structures, Drains.

Application may be made for qualification under any or all of the categories above listed. For general information purposes only at this time, it is estimated that contracts resulting from tenders to be solicited in the near future on the various phases of these Works may each approximate $500,000 to $3,000,000. Completion of the project now is scheduled for December, 1963.

Civil Engineering Contractors who desire to make tenders for these Works, or parts thereof, are requested to submit full details on their Concerns, their qualifications, and their experience along the lines involved to:

KHUZESTAN DEVELOPMENT SERVICE
P. O. BOX NO. 14, AHWAZ, IRAN.
with copy to
the Consulting
Engineer —
NEDERLANDSCHE
HEIDEMAATSCHAPPIJ,
SICKESZPLEIN 1, ARNHEM,
THE NETHERLANDS.

Khuzestan Development Service hereinafter will be referred to as KDS, and Nederlandsche Heidemaatschappij hereinafter will be referred to as the Consulting Engineer.

Application should be forwarded sufficiently early and by such means as will assure receipt by KDS and by the Consulting Engineer not later than February 28, 1961.

All copies of Application shall be in the English language; exception only being made to supporting literature or documents not readily available in the English language.

Application shall contain the Name, Address and full details of the constitution of the Company, Corporation, Partnership, or otherwise, under which tenders subsequently would be made and Work executed, if a Contract is awarded, together with desirable supporting documents and/or certifications.

Application shall contain a full history of the Company, Corporation, Partnership, or otherwise, under its present name, any other name(s) under which it did or still operates, and association(s), if any, with any other concern(s).

Application shall include a list of Works recently carried out by the Applicant which were similar or comparable to the Works generally indicated herein for the Dez Pilot Irrigation Area, together with the approximate amount of each Contract, the date of completion, the names of employers and consultants, and the current back log of work carried by the Applicant.

Application shall include particulars with respect to relevant construction equipment owned by Applicant, and the present location of such equipment.

Application shall include any additional information which might assist KDS and the Consulting Engineer in determining the qualifications of the Applicant for the Dez Pilot Irrigation Area Work herein referred to.

Application shall clearly indicate any reservations by the Applicant toward use of Iranian labor, both skilled and unskilled, to the maximum extent practicable in connection with work in Iran, as well as any reservations concerning agreement to comply with all applicable laws and regulations of the Government of Iran in obtaining any Contract and while performing work under such a Contract in Iran.

Application shall clearly indicate the category or categories of Work (a through d, herein) in which the Applicant desires to submit tenders when issued.

KDS and the Consulting Engineer shall have the right to disqualify, without prejudice, any Applicant who in their judgement does not at this time best meet requirements for the Work, involved. In making their determination, consideration shall be given, but shall not necessarily be limited to: Applicant's record and experience along the lines involved, including Work executed in areas and under conditions comparable to the Khuzestan Region of Iran; Applicant's reputation as regards integrity in such transactions, and their record for maintaining schedules; Applicant's normal and present construction organization, their equipment, and their apparent availability when and as required for the Work involved; other features concerning the interests, regulations, and policies of the Government of Iran and of the International Bank for Reconstruction and Development, through whom funds will be made available for the Work.

Unless otherwise clearly indicated in application, it shall be understood that KDS and the Consulting Engineer shall have the right to make relevant inquiries concerning Applicant, through Applicant's references and others.

KDS and the Consulting Engineer shall have right to include on their Bidder List(s) such concerns known and believed by them qualified to offer tenders on the Work involved, supplemented by a reasonable number only of such additional concerns responding to this request for qualification applications who are considered by KDS and the Consulting Engineer as apparently best qualified. The decision of KDS and the Consulting Engineer shall be final in this respect.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5513) will be received at McCook, Nebraska, until 10 a.m., Central Standard Time, March 28, 1961, for furnishing labor and materials for Earthwork, Structures and Surfacing for St. Ann and Spring Creek Road Relocations, Frenchman-Cambridge Division, Nebraska, Missouri River Basin Project. Location approximately 15 miles north of McCook, Nebraska. Principal items are 260,000 cu. yds. excavation for roadway; 8,300 cu. yds. riprap; 674 lin. ft. furnishing and laying 18-, 24-, 30-, 42-, 54-, 72- and 102-inch diameter corrugated metal pipe; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Building 46, Denver Federal Center, Denver 25, Colorado; Post Office Box 737, McCook, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5507) will be received at Collbran, Colorado, until 10 a.m., Mountain Standard Time, March 23, 1961, for furnishing labor and materials for Earthwork and structures, East Fork Diversion Dam, East Fork Feeder Canal and Bonham Dam Rehabilitation, Collbran Project, Colorado. Location near Collbran, Colorado, in Mesa County. Principal items are Excavation 71,200 cu. yds.; Embankment 12,000 cu. yds.; concrete 545 cu. yds.; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, P. O. Box 396, Collbran, Colorado; P. O. Box 360, Salt Lake City, Utah; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5508) Set Aside for Small Business, will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, March 14, 1961, for furnishing three (3) 8.27-foot by 15.82-foot fixed-wheel gates for Flaming Gorge Powerplant, Colorado River Storage Project, Utah-Wyoming. Delivery is desired within 360 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5512) Set Aside for Small Business, will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, March 21, 1961, for furnishing 352 trashracks having a total estimated weight of 1,192,000 pounds for Glen Canyon Dam, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 240 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Bids: March 16, 1961

Railroad Bridges, Embankment and Interlocking Tower

The Chicago, Rock Island and Pacific Railroad Company, W. B. Throckmorton, Chief Engineer, is taking bids due on March 16, 1961 at 1:30 P.M., Central Standard Time, for Calumet-Sag Channel Subcontract No. 7 for the Chicago, Rock Island and Pacific Railroad Company's portion of the track grading along the main lines east of Western Avenue and the Interchange Tracks north of 135th Street; also, grading and street work at four main line grade crossings and under Bridge No. 161 and the completion of the work on the substructures and superstructures of Approach Bridge Nos. 161, 163, 164, and 168; also, all work on the substructures and superstructures of Canal Bridges Nos. 159 and 159A; also, the construction of a three-story, masonry-type Interlocking Tower. All work is at Blue Island, Illinois.

The estimated quantities of the principal construction items are 58,000 cubic yards of compacted embankment, 5,550 cubic yards of reinforced concrete, and the erection of 2,764 tons of structural steel furnished by the Railroad and now on hand, or on order.

Plans and specifications may be obtained from the Chief Engineer's Office, Room 403, LaSalle Street Station, 139 West Van Buren Street, Chicago 5, Illinois.

A charge of $20.00 for each set of plans and specifications will be made. The payment should be made in the form of a certified check or money order made payable to the Treasurer, C.R.I. & P. R.R. Co. The payment will not be returned.

Bids: March 16, 1961

Round Valley Reservoir Project South Dam and Tunnel and North Dam, Dike and Relocated Road and the Appurtenant Works Contracts RV-1 and RV-2

SEALED BIDS will be received from bidders by the Department of Conservation and Economic Development, at its offices, first floor, 205 West State Street, Trenton, N. J. at 11:00 A.M. Eastern Standard Time on March 16, 1961 and will be opened and read immediately thereafter for the following two contracts for the construction of the south dam and tunnel and the north dam and dike, all as set forth in the specifications. The work is located near the Borough of Lebanon, in the Township of Clinton, Hunterdon County, New Jersey.

Contract RV-1 is for the construction of the south dam of earth compacted by rolling with provisions for a future increase in the height of the dam which initially will be 1400 feet in length along the top and have a maximum height of about 175 feet. The foundation under the impervious core will be grouted to provide a tight seal. A short intake tunnel with a shut-off tower will be located in the west abutment of the dam.

Contract RV-2 is for the construction of the north dam and dike of earth compacted by rolling with provisions for a future increase in the height of these structures which initially will be 1460 and 2335 feet in length along the top, with maximum heights of 125 and 76 feet, respectively. The rock foundation under the impervious core will be grouted to provide a tight seal. Included in the contract are a portion of the relocated road and outlet conduits and works.

A bidder on both these contracts may, if he desires, specify in the bid form of either or both contracts that he will agree to make a percentage reduction from the total cost of the contract, if both contracts are awarded to him. Bids will be accepted from bidders prequalified with the Department of Conservation and Economic Development in accordance with R.S. 52:35.

A separate bid for each of the two contracts, each accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey in an amount not less than 2 percent of the bid, an Agreement of Surety, an Affidavit of Non-Collusion, the name and address of the prequalified subcontractor to do the grouting, drilling, core boring and sampling, an Appointment of Agent by Non-resident Bidders and revised Financial Statment and Plan and Equipment Statement on prequalification forms, must be enclosed and sealed in separate envelopes provided for that purpose by the Department. Bids not so submitted may be rejected. Bids must be delivered at the above place on or before the hour named, as no bids will be accepted after the hour specified.

Contract pamphlets for each of the two contracts containing information for bidders, forms of bid and contract, specifications, requirements as to surety and subcontractor for grouting etc., and separate folders of contract drawings can be obtained in the office of the Chief Construction Engineer of the Bureau of Design and Construction of the Division of Water Policy and Supply of the Department of Conservation and Economic Development, 32 East Hanover Street, Trenton, N. J., upon application in person or by mail, by depositing the sums of $15.00 for each contract pamphlet and $10.00 for each folder of contract drawings, and to cover the cost of mailing of one contract pamphlet and one folder of drawings, the additional sum of $5.00 per each set. All checks shall be drawn to the order of the Treasurer of the State of New Jersey. The deposit for the contract pamphlet will be refunded within 30 days of the award of contract upon the return of such document in good condition without written entries. Deposit will not be refunded for the folder of contract drawings. For further particulars apply to the office of the Chief Construction Engineer.

The Commissioner reserves the right to select the bids, the acceptance of which will be most advantageous to the State, price and other factors considered. Any and all bids may be rejected when the Commissioner determines that it is in the public interest so to do.

Salvatore A. Bontempo
Commissioner of Conservation
and Economic Development

Bids: March 2, 1961

New York State Department of Public Works

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Canal Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 2nd day of March 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 1, N. F. RONAN, Acting District Engineer, 353 Broadway, Albany, New York		
Greene	R.C. 61-37	Lexington-Prattsville, Pt. 2, S.H. 886, Bridge No. 1
DISTRICT No. 10, AUSTIN M. SARR, District Engineer, 325 W. Main Street, Babylon, Long Island, New York		
Queens	B.P. 61-84	Far Rockaway, The Rockaways, City of New York

Type	Deposit	Estimated Cost of Work
Bridge Repairs	$5,000 Plans $5	$87,000
Beach Protection 3 Stone Groins and Bulkheading	$14,000 Plane $0	$250,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Many contractors depend entirely upon the

OFFICIAL PROPOSAL COLUMNS of Engineering News-Record

for Opportunities to bid. They might not see your announcements if printed elsewhere

You undoubtedly want their bids on your contracts. Make sure of them on your next contract.

The cost is only $2.70 a line per issue.

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The advertising rate is $45.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

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Subject to Agency Commission.

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ISSUE
CLOSES
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$2.70 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

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Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36

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Classified Adv. Div. of this publication.
Send to office nearest you.
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CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• POSITIONS VACANT

Construction Supervision. Construction engineer for inspection and supervisory work on electric power lines and substations. Opportunity for permanent employment and advancement with well-known consulting engineering firm. Send resume to P-6005, Engineering News-Record.

Engineer-Director of Specifications Department. Large Midwest consulting firm has immediate opening for capable man with broad experience in specification writing for all branches of building construction work. Must also possess administrative ability. Moving expenses paid. Send complete resume of educational background and experience, including personal qualifications to P-6053, Engineering News-Record.

Wanted Superintendent or Assistant Superintendent for hydraulic dredging firm in midwest. Experience on State and Corps of Engineer contracts preferred. Excellent opportunity for right man. State experience and references. All replies confidential. P-6067, Engineering News-Record.

Electrical Engineer familiar with electric power systems. Permanent employment with opportunity for advancement in long-established consulting engineering firm. Write or call Stanley Engineering Company, Muscatine, Iowa.

Senior Cost Engineer. Must be familiar with the Uniform System of Accounts for Electric Utilities. Duties will consist of analyzing completed major construction projects for an Electric Utility. Experience with the Federal Power Commission or a State Public Service Commission would be desirable. Some experience with the Property Record Department of any Electric Utility would also be an asset. Please send complete information on experience, references, salary requirements, and availability. Indianapolis Power & Light Co., 25 Monument Circle, Indianapolis 6, Indiana, Employment Division.

Graduate Engineer—Wanted as superintendent. Also assist in sales work and estimating. Permanent. The A. S. Johnson Company; 3311 Jennings Road; Cleveland 9, Ohio.

Civil & Design Engineers wanted by Illinois consulting firm. Salaries from $7000, depending upon ability. Permanent positions with paid vacation, sick leave, and profit-sharing plan. Unlimited opportunities for aggressive personnel. P-6080, Engineering News-Record.

Engineer Wanted—Water Supply & Distribution-Graduate engineer experienced in design for well supply, water distribution systems, sewage treatment & sewage collection systems. Salary open. Location Long Island, N. Y. P-6108, Engineering News-Record.

Senior Water Supply Engineers with broad experience in design and/or supervision of construction of municipal water systems including treatment plants, pumping stations, distribution networks. Positions available New York City and overseas. Base salaries $11-14,000. For overseas positions salary differential and maintenance allowances to be added. Send complete resume and salary requirements to P-6119, Engineering News-Record.

(Continued on following page)

ENGINEERS DESIGNERS

McKee offers permanent career opportunities to individuals qualified by experience to undertake the design of:

Steel Plants	Refineries
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Remuneration commensurate with experience and ability.

Reply in confidence to:

G. VICTOR HOPKINS
Arthur G. McKee & Company
2300 Chester Ave. Cleveland 1, Ohio

PERMANENT CIVIL SERVICE POSITIONS NOW OPEN

Water & Sewer Department

CE I—I yr. mun. exp. desirable
$6,000-$7,200

Engineering Department

CE I—I yr. mun. exp. desirable
$6,000-$7,000

CE II—3 yr. mun. exp. desirable
$6,900-$8,280

Traffic Engr.—3 yr. mun. exp. desirable
$6,900-$8,280

Applicants must be graduate Civil Engineers. Send complete resume to Dean S. Robinson, Director of Personnel, City of West Palm Beach, Florida.

Structural Steel and Miscellaneous Iron Sales Engineers

Large fabricator in Cleveland, Ohio needs one structural steel and one miscellaneous iron salesman. Excellent positions for the right men. Salary plus bonus and other benefits.

P-6034, Engineering News-Record
Class Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

CONTRACTORS

Wanted for Costa Rica

Bulldozers, hauling equipment with operators, long term contract.

INTERNATIONAL IRON, INC.
527 Texas National Bank Building
Houston, Texas
CA 7-6251

CONSTRUCTION SUPERINTENDENT

Heavy, highway and street construction. Location —Southern New York State. Civil Engineering Degree preferred. Chance for advancement with growing firm.

P-6162—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

STRUCTURAL ENGINEER

Bridges, Buildings, and other Civil Engineering project. Includes structural steel and prestress concrete. Experienced. Responsible. Unlimited opportunity with small upstate consulting firm. Send resume including salary background.

KONSKI ENGINEERS
Jefferson Building Syracuse 2, New York

The
STATE OF CALIFORNIA
INVITES YOUR APPLICATION
for

SUPERVISING HARBOR ENGINEER

with the
San Francisco Port Authority

Registration in any state as a Civil Engineer with broad and extensive experience on major projects, three years of which shall have been in the direction of work in connection with the design and construction of harbors and harbor facilities.

Applications must be filed by March 31, 1961.

For details and official State application form, please write:

C. S. Warner, Dept. E
Engineering Personnel Services
California State Personnel Board
801 Capitol Avenue
Sacramento 14, California

STRUCTURAL DESIGN ENGINEER—Permanent Position. Reinforced concrete and steel structures for water and sewage treatment plants for large Utility Company.

College degree required. Engineer's license preferred but not necessary. Minimum design experience 5 years.

Company paid pension plan. Insurance and other Company benefits.

State full particulars and salary requirements in letter.

Location—Philadelphia, Pennsylvania.

P-6032, Engineering News-Record
Class Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

Electrical Engineers and Designers

Several openings available for electrical engineers and designers experienced in powerplant (preferably hydro) design. Salary commensurate with experience. Please send complete resume to Personnel Manager

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago 6, Illinois

• POSITIONS VACANT

(Continued from preceding page)

Estimator—Capable and experienced estimator for work with medium sized general contractor. Minnesota location. P-6151, Engineering News-Record.

Civil Engineer with highway design experience. Send Resume, salary required to Louis Berger & Associates, 177 Oakwood Avenue, Orange, New Jersey.

Engineer—Job Supt., Industrial & commercial. Able to handle a million dollar project. Central Illinois Contractor, profit sharing, good future. Give educ., exp., salary req., photo & ref. in reply. P-6150, Engineering News-Record.

Wanted—Engineer with field inspection experience on general and heavy construction projects. For overseas assignment with long-established consulting engineering firm. Permanent employment at salary commensurate with ability. Please send resume and salary requirements to P-5895, Engineering News-Record.

Soils Engineer. Graduate Civil Engineer with field experience in foundation investigation, testing, and laboratory management. Will supervise field exploration and soils laboratory testing for highway construction. Required to analyze field information and test data to develop design criteria and recommend construction technique. Salary, to be negotiated depending on experience. Location, Intermountain West. P-6187, Engineering News-Record.

Paving Materials Salesman to cover North Jersey area. Road construction experience preferred. Salary open. P-6190, Engineering News-Record.

Asphalt Paving Foreman to work in North Jersey. Experience preferred, however, we will train right man. P-6191, Engineering News-Record.

Construction Superintendent. Experienced in school construction, New York City. Send complete resume to Planet Construction Corp., 11 West 42nd Street, New York 36, N. Y.

• POSITIONS WANTED

Executive Female: 15 yrs exp all phases genrl const, efficient coordinator, administrator, mgr, atty, govt contracts, claims. PW-5887, Engineering News-Record.

Construction Superintendent Available immediately 30 years experience in all type of heavy construction. PW-6135, Engineering News-Record.

Purchasing—Heavy Construction. Wide experience material & equip. procurement, setting up procedures & office mgmt. missile base & other state & fed. work. PW-6158, Engineering News-Record.

Const. Supt. age 42. 20 years experience in all types Bldg. Construction. Available for travel. PW-6142, Engineering News-Record.

Temporary Assistance—Reg. P. E., L. S., 38, will serve perdiem anywhere during overload, absence of key man, search for replacement. Broad background, const. and consult., field and office. Phone Walnut 1-7803, Fond du Lac, Wisconsin.

Superintendent experience heavy excavation, grading some estimating, highways dams. PW-6152, Engineering News-Record.

Project Manager—Const. Supt.—Far East. 17 years overseas, general and heavy construction experience, background includes estimating, budgets, purchasing. Residence, Japan. U. S. citizen, age 56. Presently employed in Korea. Will be ready for new job after 1 March. (Have available, qualified International personnel—Engineers and craftsmen—all trades.) PW-6154, Engineering News-Record.

Heavy Construction. Project manager general superintendent, conversant all phases, including steel and concrete structures, pipelines, process piping, oil refineries and chemical plants, bridges. Used to State and Federal work and negotiations and administrative. Good estimator, capable administrator, good organizer. Have following and will relocate. Available two weeks. Foreign work considered dependent upon location. Speak, read and write Spanish. PW-6134, Engineering News-Record.

Gen. Supt.—Supt.—Estimator: Exp. on airbase, highway, city; exc. paving, asph.—age 30, salary open, will relocate, avb. soon. PW-6149, Engineering News-Record.

• POSITIONS WANTED

Construction Engineer. 35 years experience waterworks, sewage treatment, bridge, tunnel, heavy construction projects—design to construction. Handled multi-million dollar jobs. Know construction methods and control. Available responsible supervision project construction. PW-6148, Engineering News-Record.

Equipment Superintendent-Service Manager Const. Eqpt. Dist. Also have been Genrl. Supt. & Asst. Supt. on earth moving & heavy industrial const. Thirty years experience. Presently on South American Project. Available April 1st. PW-6052, Engineering News-Record.

Soils and materials engineer, BSCE, MSCE. Also experience in highway and heavy construction. Desire soils and materials engineering or heavy construction. Will relocate and travel, US or foreign. PW-6059, Engineering News-Record.

Construction Supt—Proj Mgr, Roads, Bldgs, Flood Control, Tunnels, excellent Mech background, P.O. Box 5765, Washington 14, D.C.

General Project Manager & Contract Adminstr. 22 yrs. hvy. constr. major projects U.S. & O.S. negotiations to completion. PW-6090, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Former Consultant, adequate capital, extremely productive, 55, seeks association with established engineering organization, New York City or Miami area. PW-6197, Engineering News-Record.

Sodding Foreman—long experience have own sod cutting machine salary basis or piecework travel any where. PW-6196, Engineering News-Record.

Estimator—Engineer. 18 years experience on buildings and Industrial construction, PW-6193, Engineering News-Record.

Civil Engineer—28—B.S.C.E. Field layout engineer or assistant superintendent. Available in N.Y.C. area. PW-6200, Engineering News-Record.

Constr. Supt. 15 yrs. in charge, bridges, bldgs., water and sewage. Prentiss, FR 7-5003, Charlotte, N. C.

Project Engineer, age 32, with managerial and cost experience. Handle expediting, pay estimates, purchasing, estimating, sub contractor coordination. Broad experience with missile program and govt. contracts. Want to relocate to West Coast or Foreign employment. Min. $9,000. Resume. P.O. Box 6503, Orlando, Florida.

Argentina. Civil Engineer. Licensed in Argentina. Diversified experience both in U.S. and Argentina. Speak Spanish and English. Seeks responsible position with Argentine branch of U.S. firm. PW-6185, Engineering News-Record.

• POSITIONS WANTED

Sewer foreman, for the contractor who desires the service of a sewer construction specialist and not the services of a Jack-of-all-trades. PW-6204, Engineering News-Record.

Soils and Foundation Engineer, 28, MSCE, desires overseas employment. Five years experience in U. S. and abroad in connection with earth work and structural foundations. PW-6199, Engineering News-Record.

Engineer, Estimator, Project Manager, 38, BIE, 10 yrs. exp. design, specifications, bids, construction, scheduling, and expediting of water, sewerage and site work. Familiar with Army, Navy, and municipal procedures and specifications. Cliff Doyle, Jr., 1244 Edgewood Ave., Jacksonville, Fla. EV-96891.

Construction Superintendent—over 30 years experience all types road construction and paving. PW-6192, Engineering News-Record.

Heavy equipment operator, all types, prefer dragline or crane. Twenty years experience. Will travel. Available immediately. PW-6182, Engineering News-Record.

Chief Estmator—hvy. const. 20 yrs. exper. bridges, tunnels, sewage plants, & highways. PE 40. Desire position where proven money making ability can be utilized. PW-6177, Engineering News-Record.

Engineer-manager. Highways, airports, structures. Experienced on joint ventures and projects requiring correlation of work from several offices. Registered N.Y., Cal., Fla. Available, March. PW-6171, Engineering News-Record.

Reg. C.E. construction desires construction manager of allied position with Gen. contr. or owner. 20 yrs. varied exp. PW-6218, Engineering News-Record.

C.E.—Registered, 11 yrs. experience in structural steel & heavy rigging, estimating & supervision on dams, locks, power plants, hangars, bridges. Seek responsible position with progressive firm. Best references. PW-6215, Engineering News-Record.

Construction Executive, 38, M.S.C.E., M.B.A., broad experience all phases marine, industrial and building construction. Interested in responsible, executive position with both a challenge and a future. PW-6214, Engineering News-Record.

• SELLING OPPORTUNITIES WANTED

Agent calling on industrial accounts in the small and machine tool field is looking for additional lines. Brown, 4348 Ranchview, Rolling Hills Estates, Calif.

Manufacturers' Agents (Reg. Engrs.) in architectural, structural, highway, and heavy construction fields desire to add lines of equipment and materials for Ga. and southeast. Box 1328, Atlanta 1, Ga.

SEARCHLIGHT SECTION CLASSIFIED ADVERTISING

Send New ADS or Inquiries to Class. Adv. of Engineering News-Record, P. O. Box 12, New York 36, N. Y., For February 23rd Issue Closing February 13th

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To let 50,000 C. Y. Rip Rap, location— New York State. Replies WA-6125, Engineering News-Record.

• BUSINESS OPPORTUNITIES

Consulting Engineers Ohio firm of Civil, Structural, Mechanical, Municipal, enlarging association. Submit resume. Investment $7,000. BO-6091, Engineering News-Record.

• WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

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Editorials

Roadbuilders Arise!

Something new has been added to the nation's roadbuilding program—a sense of urgency on the part of the federal government to get jobs under way faster. There is even a feeling in the air that the money to effect a sustained speed-up may be forthcoming. These changes should not be overlooked by those who have long maintained that we have much greater roadbuilding capacity than we have ever used. The chance to prove the point may be close at hand.

The new sense of urgency was apparent in President Kennedy's economic message, and specifically in the order to release $724 million of authorized highway funds to the states immediately—which means two months before they were due. This may or may not get jobs under way more quickly. It depends on the readiness of designs and contracting plans in the state highway departments.

It is far from likely that as large a backlog of these jobs is ready as would be the case if the road program had retained the emergency character with which it began five years ago. This is not to say that it should be a crash program, but neither should it be regarded as just a routine public works operation. The nation needs a modern road system at the earliest date possible, and this requires that the program at least be under continuous pressure to make fast progress.

The speed-up that Washington now seeks is, of course, focused on the jobs and business stimulation that roadbuilding can supply as a recession antidote, rather than to get along faster with the road program. But it is also eminently desirable that any sense of urgency that the speed-up fosters be prolonged and made permanent.

The roadbuilding fraternity should do everything possible to implement the Administration's desires for a speed-up, both to aid in economic recovery and to prove that roadbuilding can be carried on at a much faster pace. It is just possible that the effort might pay off in a stepped up schedule to complete the road program. This would be a welcome change and a wise departure from the prevailing attitude that the program is so big and so costly that it must be stretched out to fifteen years instead of the original objective of ten.

No Contest

If confusion doesn't reign it ought to in the camp of the build-bigger-than-the-Russians-whether-we-need-to-or-not crowd. Premier Khrushchev has labeled Bratsk, which is the biggest hydroelectric project in the world, a mistake. The reason, in Mr. Khrushchev's words to the recent Communist Party agricultural conclave in Moscow: "There are no consumers yet for the electricity this station will produce."

There are those in this country to whom Bratsk was and is a challenge, a sort of hydraulic insult that can be answered only by construction of more and bigger hydro plants in the U.S. Such plants are necessary to keep up with the Russians, they say, and whether power needs could be satisfied more efficiently some other way is not important.

The Soviets have learned a lesson, Mr. Khrushchev indicated. "It is a good thing that now, even though belatedly, we have formed a correct idea of further development of and priority in investing our capital in construction of hydropower stations," he said. This was an allusion, perhaps, to an avowed Soviet intention of giving new thermal capacity priority over hydro during the current seven-year program.

We don't advocate priority for developing any particular kind of generating capacity, but we do urge that U.S. power development be carried out on the basis of a realistic appraisal of U.S. power needs and most economically available resources, and not to win a contest with the Russians.

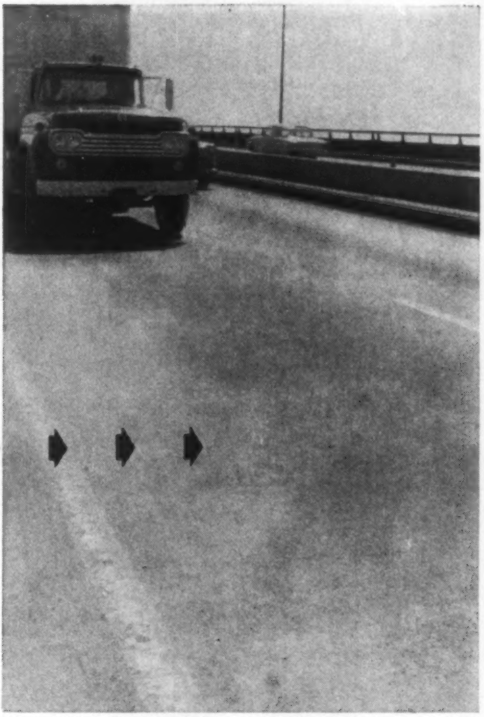
Educating Engineers

Whether engineering students should be taught fundamental principles or practical procedures is such a favorite question for extreme pedagogical argument that it is interesting now and then to take a look at what the professors actually do when they have to decide on a curriculum. Usually they abandon their extreme views, if any, and come up with a wise and sensible program.

The engineering faculty at Purdue University, for example, has recently bared its philosophy in a report to the alumni of its engineering schools. In the beginning, the report states that "the mastery of specific arts and techniques must be left to the engineer's continuing education after graduation." This is plainly a vote in favor of fundamentals. Later on, however, it is noted with pride that "Purdue has taken the lead in introducing the engineering student to the use of the digital computer." Score a vote for practice.

If there is inconsistency here, Purdue has taken the wise course and accepted it. Moreover, it fits the inconsistency into a philosophy of "total education" that will prepare the student for "a professional life that will span the last half of the 20th Century." It justifies the teaching of practical procedures by emphasizing "systems" instead of "components" in design courses, and it stresses fundamentals on the ground that they will not become obsolete while current practices will. And finally, the student is required to take non-technical courses to broaden his outlook and develop his sensibilities to the world around him.

The Purdue philosophy and program demonstrate that, despite confusing arguments, the realities of engineering education are good.



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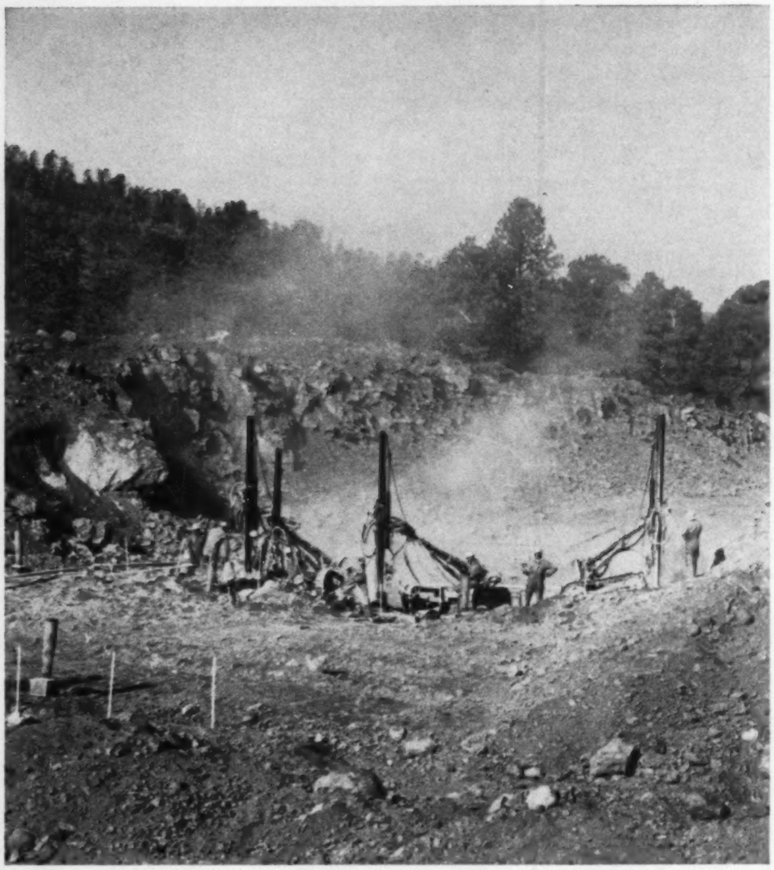

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